

UNITED STATES BUREAU OF EDUCATION  
BULLETIN, 1913, NO. 44 . . . . . WHOLE NUMBER 555

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# ORGANIZED HEALTH WORK IN SCHOOLS

WITH AN ACCOUNT OF A CAMPAIGN FOR SCHOOL HYGIENE  
IN MINNESOTA

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WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1913

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## ORGANIZED HEALTH WORK IN SCHOOLS.

### PART I.—ORGANIZATION FOR HEALTH SUPERVISION

In 1900 only 8 cities in America had any organized health work in schools. Since that time over 400 cities have organized departments for the health supervision of school children, and as Dr. Leonard P. Ayres remarks, "this development is without parallel in the history of education." To quote further from Dr. Ayres, "No school (in 1900) had ever heard of a school nurse, for no city in the world employed one; but to-day (1911) 76 American cities have corps of school nurses as permanent parts of their educational forces \* \* \* and 48 cities employ staffs of school dentists."

A few years ago the public schools made no provision for the education of the blind, crippled, or mentally deficient, but now in New York City alone there are more than 100 classes for mentally peculiar children, while arrangements are rapidly making for the care of crippled and other classes of physically handicapped children.

It was only as recently as 1909 that the first open-air school for tuberculous children was opened in Providence, but to-day such schools may be found in something over 40 cities. The special study of the mentally deficient child has engaged the attention of public-school educators for a period of less than three years, but at present plans are rapidly making in many progressive towns and cities for the careful study of such children by the employment of exact psychological methods. All these facts indicate that the physical care of children is engaging the attention of the serious-minded schoolmen. Yet, while all these facts are interesting and significant, it must not be forgotten that no uniform methods of health organization in schools have been evolved, and that there still exist the most widely divergent beliefs and practices in this respect.

Health work in schools needs standardization. The experiences of cities already organized in school health matters ought to be studied by other places attempting such organization for the first time.

In general it may be safely stated that schools receive what they pay for. Whatever sort of public service is worth having is worth

paying for. We frequently learn of a medical officer in schools inspecting many thousand children during the school year and giving to this work only a portion of his time and receiving for his services a pittance of \$200 or less.

To be truly useful, health work in schools requires special training, aptitude, time, and reasonable remuneration. It is a great mistake to regard this work as primarily medical in nature, for it is first and above all else educational. It must aid the boy and girl in health growth and development; it must help the school to adapt its work to individual physical and mental conditions; it must assist in the correction of existing physical defects and in the prevention of others; it must teach the fundamental elements of preventive medicine; it must organize and supervise social-service work in the school community.

In order to indicate some of the best plans for health work in schools and in a measure to furnish standards which may be successfully put into operation, several outlines will be presented. They are devised to meet varying conditions, such as are sure to exist in different places.

These standards are in a general way indicated by the following outline:

- (1) Organization with a medical officer and nurse or nurses.
- (2) Organization with school nurse or nurses only.
- (3) Organization by the employment of a simple, nontechnical Health Survey on the part of the teachers only. Such a survey is provided by a series of questions based upon ordinary observation of physical and mental conditions.

(1) SUPERVISION BY A PHYSICIAN AND ONE OR MORE NURSES.

A physician should be selected who has some special interest in and adaptability for work among school children. In addition to this he ought to make a special study of school hygiene, for medical colleges do not ordinarily include such courses in their curricula.

Whether a physician should give part or all of his time to this sort of work will largely depend upon the volume of work required of him. In school communities where the number of school pupils does not exceed six or eight thousand, it is possible for one well-trained school physician to render satisfactory service by devoting one-half of his time to the work, provided he has as assistants at least two well-trained nurses who possess special adaptability to this kind of work.

In places of from eight to twelve thousand school population it is best to have one physician to give his entire time and an assistant physician to give half of his time. In such places there should be employed at least three school nurses.

In places where the school pupils exceed twelve thousand in number, one may estimate an additional half-time school medical officer for each six thousand increase in the number of pupils and one school nurse on full time for the same number.

For a city the size of Los Angeles this would mean approximately 12 physicians and 12 school nurses.

Many will say that this is an inadequate force for so large a number of pupils, but it must be remembered that school systems have many practical adjustments to make and that this is actually a larger force than schools now employ.

When a city is large enough to require the services of several medical officers in its schools, the following plan is suggested and recommended as an efficient one:

There should be one general director giving his entire time to the work. Instead of employing several half-time medical men as assistants, fewer men on whole time are recommended. The organization might be made as here indicated for a city of, say, 60,000 school children (about 300,000 actual population): One chief health director; 1 general medical officer; 1 eye, ear, nose, and throat specialist; 1 specialist in mental and nervous diseases and experienced in psychological methods; 1 emergency physician, who also would give instruction in hygiene and first aid; 1 woman physician in charge of high-school girls and giving instruction in hygiene.

This number (6) would take the place of 12 physicians under the plan usually in vogue and would result in far better work in every respect.

Such a plan would require a central office of several rooms—one general reception room, one private office for the director, one examining room, one laboratory equipped with medical and psychological apparatus.

There should be a dental and medical clinic, either in connection with the schools (and this is preferable) or, if this seems impossible to arrange, then in connection with some other organization. With this plan in operation, parents of defective children would have the opportunity of taking their children to the general offices for special examinations. The different specialists would keep office hours on different days of the week and could thus give careful and deliberate attention to such school children as required it.

From this office cards of admission to the medical or dental clinics could be issued to those entitled to them.

One special school nurse should be assigned for duty at the central office and should keep the records and assist the physician in charge of the office in the examinations.

There should be one school nurse assigned to each school physician.



The plan proposed presupposes preliminary examinations on the part of nurses and teachers after the manner which will be suggested in the "Outline for the Health Grading of School Children."

This method relieves the medical officers from much purely routine examination of practically normal children and allows them to concentrate their attention on children really needing their expert services. With the methods employed at present, school doctors waste a great amount of time doing purely inexpert work which might far better be done by teachers and nurses. At present most cities are in this way paying experts for inexpert service. This method wastes both time and money and ought to be abolished.

In order to indicate several plans for school health organization which are now in successful operation, the general organization as it exists in four large cities are given below. Several other cities whose organizations are not given ought also to be carefully studied. Of particular importance among those cities whose school health organizations are not here described are the following: Kansas City, Mo., Cleveland, Ohio, Montclair, N. J., Cincinnati, Ohio, Los Angeles, Cal., St. Louis, Mo., Gary, Ind., Boston, Mass., Seattle, Wash., Duluth, Minn., Hibbing, Minn.

*Milwaukee, Wis.*—The Milwaukee school health department is maintained by the board of education and has the following organization: One medical director; 10 assistant medical inspectors; 1 specialist on diseases of the eye, ear, nose, and throat; 1 full-time dental inspector; 1 special assistant for psychological and anthropological tests; 5 school nurses.

The medical director, dental inspector, and nurses devote their entire time to their work; the remainder of the staff give one-half of each day. A central office is maintained, where the medical director meets parents, conducts special examinations, and carries on the general office work of the department. A dental clinic for indigent children, an outdoor school, and a school for crippled children have recently been added. There are four classes for blind children and four centers for the treatment of speech defects.

The city is divided into 10 districts, 9 of which are approximately equal in size and contain about the same number of schools; the tenth, located in the central portion of the city, covers less area, because the schools are closer together and the conditions met among the pupils are worse than in the outlying sections of the city. Each district is under the care of one assistant medical inspector. For the work of the nurses the city has been divided into five districts, of which the four outlying territories are about equal in size, and the fifth, in the center of the city, is considerably smaller.

Each school has been supplied with the following materials: An emergency case containing a stretcher, drugs and dressings; a case

for filing the doctor's and nurse's records; a circular for the principal, explaining in brief the purposes of medical inspection, his duties in its accomplishment, and information as to causes and time of exclusions; a circular for each teacher, detailing her duties and giving information as to the early symptoms of contagious diseases; code cards for all teachers on which all diseases of importance are indicated by number; blue cards; psychological examination blanks with circulars of explanation; physical examination blanks.

Complete directions are given to the medical inspectors and nurses in respect to their routine work in the schools. Principals of schools are instructed also in respect to the general plan of health supervision. Indigent children suffering from physical defects are referred to the various city dispensaries. Special attention is given to retarded children, and psychological tests are in constant use.

The Milwaukee system is thoroughly practical and efficient, and excellent results are obtained. It is worthy of careful study. Dr. G. P. Barth is the medical director.

*Philadelphia, Pa.*—In Philadelphia the examination of school children is conducted by the city health department, but the expense is borne by the board of education. Under ordinary conditions this plan could not be recommended, but it appears to work satisfactorily in Philadelphia. The school nurses are employed and paid by the board of education.

The scope of the work at present includes:

- (1) Routine examination of every child once each year as required by the State law.
- (2) Sanitary inspection of school building.
- (3) The direction and exclusion of children suffering from contagious diseases.
- (4) The examination of absentee children for the bureau of compulsory education.
- (5) Special examination of mentally deficient children.
- (6) Medical supervision of open-air classes for anemic and tubercular children.
- (7) Examination of applicants for position of school janitor and other positions in the department or building.
- (8) Medical supervision of special classes for blind or crippled children. The supervision of candies and other foodstuffs sold by vendors around the school premises will soon be put into effect.

*Oakland, Cal.*—In Oakland, Dr. N. K. Foster has organized a plan which gives excellent results. The staff consists of 1 medical director, 1 assistant medical officer, and 7 school nurses.

Each nurse has her own particular school in which to work. At the beginning of the year a special attempt is made to give attention first to those pupils who are urgently in need of it. This is

accomplished through the efforts of the teachers and nurses. In this way the worst cases are detected and "followed up" early in the year, a point of much importance. After this preliminary work is finished the nurse examines all of the pupils in her district and sends notices of defects discovered to parents. A visit is invariably made to the home of each child whose parents receive notice.

An interesting and valuable part of the nurse's work consists in simple "health talks" to the individual pupils at the physical examinations, particularly in relation to the defects or disorders from which they suffer. Health talks are also given to entire classes both by the school nurses and school doctors, and special attention is given to instruction in matters pertaining to sex hygiene.

A central office is maintained by the board of education at which the school physicians keep office hours, so that parents may come with their children for special examinations and consultations in respect to further action. The entire department is maintained by the board of education, and the plan works admirably in every respect.

*Minneapolis, Minn.*—In Minneapolis the work of medical inspection and physical education is combined in the same department. The schools for stammerers, mentally retarded and deficient, the open-air schools, the school gardens, and the truant schools are also under the general supervision of the school health department.

The official organization is as follows: One medical director, 3 assistant medical officers, 18 school nurses, 12 instructors in physical training, 18 playground instructors during the summer months, 1 supervising school nurse.

The work of the Minneapolis school health department is maintained by the board of education, and it is highly efficient.

#### THE SCHOOL NURSE.

Medical inspection has rendered the school nurse inevitable. When the doctor was brought into the schools he faced a new and difficult situation. The school doctor's helplessness has been vividly described by Dr. Hayward, of England, as follows:

As a doctor I felt quite stranded in the strange atmosphere of an elementary school, coming into contact not so much with actual illness as with the primary conditions which produce and foster it—dirt, neglect, improper feeding, malnutrition, insufficient clothing, suppurating ears, defective sight, verminous conditions, the impossibility of getting adequate information from the children or a knowledge of their home conditions, and nobody to whom one could give directions or who could help in examining the children. The only means of approaching the parents was to send an official notice that such or such a condition required treatment. My duties began and ceased with endless notifications, and there it all stopped, as very little notice was taken of them.

<sup>1</sup> Part of this section is taken from Hoag and Terman's "Health Work in Schools," Houghton Mifflin Co.



This has been the experience everywhere. Without an effective follow-up service conducted by visiting nurses, medical inspection is ineffective. Until 1908 New York City relied upon postal cards sent to parents of defective children, and was able to secure action in only 6 per cent of the cases where treatment was recommended. Immediately upon placing the follow-up service in the hands of school nurses the percentage increased to 84. This brought treatment to nearly 200,000 additional pupils.

In a word, the difference between medical inspection without and medical inspection with school nurses is almost exactly the difference between mere diagnosis and cure.

In a majority of cases parental neglect spells ignorance. The postal-card notification is a poor educational device. The nurse goes into the home and by tactful presentation of the child's case effects what no other agency could accomplish. She not only secures action in the case at hand, but she becomes a permanent advisory influence in the homes where she visits. She does what the iron hand of law could not do. We can hardly imagine any kind of legal machinery, devised for compelling parental treatment of children's defects, which would succeed in as large a percentage of cases as the school nurse does.

In the second place, medical inspection without school nurses is always a costly tax on attendance. Children with scabies, impetigo, pediculosis, etc., are sent home by the thousand, there to mingle on the street with other children after school hours, beyond the control of the school and without effective treatment. Where diseases of this kind are treated either by the nurses at school or by the parents after her instruction, exclusions are usually reduced to 5 or 10 per cent of the number previously necessary. In New York the reduction was from about 10,000 to about 1,000 per month. In a quarter of a school year exclusions were enforced in New York as follows: Measles, 18; diphtheria, 140; scarlet fever, 13; whooping cough, 61; mumps, 13; chickenpox, 172; trachoma, 1,264; pediculosis, 8,994; skin diseases, 661; miscellaneous, 1,323; nearly all of the latter four classes of exclusions being preventable by school nursing.

Over 95 per cent of the above exclusions would have been prevented by school nurses. By her ministrations and instruction in the home these diseases of filth and neglect are almost eliminated. As expressed by Jane Addams (*Amer. Jour. of Nursing*, 1908):

The best of medical inspection succeeds only in sending the child home; they say that such and such a child would have a bad effect on the other children, and therefore he is sent back to the family physician for treatment. In most cases a family physician is not called in, because, in the words of Artemus Ward, "There ain't none," and therefore the child is kept out indefinitely, and the public school, so far as that child is concerned, is doing nothing, and the child continues to play in the alleys and on the street or in the doorway of the tenement with the rest of them. This is the whole idea—that medical inspection was suc-

ceeded and almost transposed by the addition of the visiting nurse. The medical inspection got the child out of school and the visiting nurse got the child back. It seems almost foolish to have medical inspection without the visiting nurse.

By virtue of her room-to-room visitation and her opportunities for observation, the school nurse also becomes the ideal sanitary inspector. She notes temperatures, ventilation, seating, cleanliness of room, toilets, blackboards, and the clothes of children. Her hospital standards of sanitation tend to follow her into the schools.

In special schools for the tuberculous, crippled, anemic, and the like the school nurse is indispensable. She records body temperatures, supervises the diet, sleep, and play of the children, and advises continually with parents, teachers, and doctors. In some such schools her constant presence is as necessary as in the hospital ward.

Again, the school nurse becomes an invaluable assistant in the teaching of hygiene to pupils. Every pupil ought to have more expert instruction on such subjects as home nursing and first aid in emergencies than the average teacher can be reasonably expected to give. This deserves a special place in the seventh and eighth grades. In the matter of sex hygiene, too, the school nurse can give much personal advice and instruction to the older girls. The nurse, more than almost any other social worker, sees the dreadful havoc wrought by ignorance of the laws of sex. She becomes vividly impressed with the necessity of such teaching as will supply to young girls the power and motive for self-protection. Girls are willing to consult her the more readily because they realize that this is an everyday subject with her.

The school nurse, like the municipal district nurse, is first and last a social worker. Important as are her duties in the school, her ministrations and educative influence in the home are still more valuable. She instructs ignorant, but fond, mothers in the best methods of feeding, clothing, and caring for their children. She is received in their homes as no other official visitor could possibly be. Mothers are quick to detect the genuineness of her interest in their children and are often ready to follow with blind faith any instructions she has to offer. At her advent in a tenement or street the mothers not infrequently crowd eagerly around her, plying her with questions and bringing their babies for inspection. The school nurse is thus a potent factor in diminishing infant mortality. In short, Dr. Osler does not overstate the case when he says that the visiting nurse is "a ministering angel everywhere." In many a family she becomes a spiritual adviser, pointing out not only inadequate sanitation which keeps them sick, but also educating them on the folly of cutthroat chattel mortgages, unnecessary furniture purchased at ruinous prices on the installment plan, the shortsighted policy of taking children prematurely out of school to work, etc. All this is especially im-

portant in the Americanization of the ignorant foreign-born population. As stated by Dr. Darlington, of New York City:

In all large communities, the poorer element of the foreign-born population presents the greatest problem encountered in municipal health work. Diversified in their habits, often superstitious and resentful of any interference with their mode of life, oppressed by poverty, frequently ignorant or neglectful of the simplest sanitary requirements, their assimilation as citizens of their adopted country comes only as a result of sanitation—persistent, inclusive, and never ending. In public health work this education is brought about by various means. Lectures, printed instructions, and publicity in all its forms are used, but the most valuable and effective form is found in individual instruction in the home. Personal efforts, advice, instruction, and demonstration offer the most practical and effective means, and we have found the employment of trained nurses for the purpose of inestimable value.

That the visiting nurse is a good economic investment is evidenced by the fact that some of the large insurance companies find it to their advantage to employ a number of them to visit the homes of policy-holders and give instruction in matters pertaining to hygiene. Department stores and factories also find it good business to employ nurses to look after the health of their employees and to teach them personal hygiene. The visiting nurse is a "health nurse."

The number of school nurses needed varies somewhat according to social conditions and according to the range of duties expected of them. We find all the way from 1,000 to 10,000 children under the care of one nurse. In New York City each nurse has from two to seven schools, with a total attendance of about 4,000 children. In Philadelphia five schools and about 5,000 children are usually allotted to one nurse, while in Boston the proportion of nurses is almost twice as great. Nor is it at all demonstrated that the point of diminishing returns has yet been reached in the number employed. It is not improbable that the ratio will be increased until it reaches an average of one nurse for each 1,000 of the school enrollment. If there were one nurse for every 2,000 pupils, about 10,000 nurses would be required in the entire United States. A nurse's room completely equipped is coming to be regarded one of the essentials in every school building of eight or more rooms.

Thus far the institution of school nursing has not spread to rural communities in the United States, though it has done so to a certain extent in England. This can not be attributed to any lack of need, but only to the greater expense and other obstacles incident to a more scattered population. As our country districts become more densely populated, and as they resort more often to school consolidation, the nurse will here also become a necessary part of the school equipment.

With such an extensive scope of duties, opportunities, and difficulties, it at once becomes evident that both the personal qualities and

the professional training of the school nurse are matters of great importance. She must be quick to understand every class and condition of people, must be patient, sympathetic, and tactful. All agree that tact is absolutely essential. She must be simple, direct, concrete, forceful, convincing. Her business is not to entertain, but to get things done, and she must therefore be persuasive as well as pleasing.

On the professional side, besides having a good high-school education and a complete course in a nurse's training school of recognized standing, she should have had some months of additional experience in a children's hospital. She must also know something of education, child psychology, general hygiene, nutrition, infant mortality, child welfare movements, domestic sanitation, and certain legal matters. If she has had previous experience as a district nurse or as a teacher, so much the better. Good health and willingness to work are, of course, taken for granted.

With the rapid multiplication of school nurses, the desirability of special professional training for them will become more and more obvious. Teachers College, Columbia University, has already introduced a one-year course for this purpose, designed to follow the usual two-year training for nurses. Courses of this nature will no doubt be established at an early date in other teachers' colleges and perhaps also in connection with medical schools. The school nurse has proved her worth to the most skeptical, but her usefulness can be greatly enhanced by the requirement of a professional training which gives special attention to problems of school hygiene.

#### (2) HEALTH SUPERVISION OF SCHOOLS BY NURSES ALONE.

This plan is adapted to places which are unable, or think they are unable, to procure expert medical service in schools. It has been definitely demonstrated that well-trained nurses with special aptitude are able to accomplish useful results even without the direct aid of medical supervision.

This plan has been in successful operation in Alameda, Cal., since 1911, and is soon to be established at Ely, Austin, Cloquet, Owatonna, and a number of other towns of Minnesota.

Properly trained nurses, as already demonstrated by Dr. N. K. Foster, in Oakland, Cal., are able to detect most of the physical handicaps of school children. Such nurses have no difficulty in discovering common defects of the nervous system, eyes, ears, throat, teeth, skin, and lymph glands of the neck. They can usually detect the presence of adenoids and note disorders of nutrition, as well as observe defective postures. About the only points of importance which they ought not to attempt to cover in their examinations are



those which pertain to certain special conditions which require very exact diagnosis. These would include the heart, lungs, special diseases of the skin and nervous system, and some of the unusual contagious diseases of childhood. Certainly more than 90 per cent of the usual defects of school children will be observed by the carefully trained school nurse, and this plan will inevitably justify itself and gradually lead to more thorough organization with medical service.

According to Dr. R. C. Cabot, of the Harvard Medical School, the school nurse comes to excel the young doctor in detecting the first symptoms of infectious disease. The results of nurse inspection in Boston prove her efficiency in this line. Under the inspection of doctors and teachers the average number of cases of scarlet fever discovered annually in the schools was 14. In 1908 the school nurses found 1,000 cases. Where the doctors and teachers have found an annual average of 86 cases of measles, the school nurses discovered 2,285. This disparity in efficiency, however, is in reality a disparity between nurses and teachers, as previous to the introduction of nurses the physicians had examined for the most part only those children sent to them by the teachers as suspects.

The following communication is from Louis W. Rapeer, who has made an exceptionally thorough study of the procedure and results of medical inspection in about 40 American cities:

I have come to the tentative conclusion that many schools do not need part-time physicians, and that a great deal would be gained and little or nothing lost by employing experienced school nurses for each group of 1,000 to 1,800 pupils.

New York City, as well as other cities, has proved that school nurses can inspect for contagious diseases. Canton, Mass., also has shown that only the nurse is needed.<sup>1</sup>

Physicians for less than one hour a day cost about half what nurses cost for full time five and a half days a week. A well-trained school nurse who has the study habit can also make the physical examinations and record the findings on a historical card for each pupil, especially for ailments and defects of ears, eyes, nose, mouth, throat, skin, scalp, malnutrition, and nervousness, including about 97 per cent of the ailments. Nurses usually lessen professional jealousy among the doctors; get satisfactory response from children and from parents; obtain cures, the great object of medical supervision; open the eyes of teachers to the symptoms of ailments and defects; follow up the children they themselves examine; cooperate with women's clubs, dentists, dispensaries, and oculists; get back the truants and absentees; keep down impetigo, lice, and infant mortality in the

<sup>1</sup> See Dr. Arthur Cabot's article in *Phy. and Surg. Jour.*, Boston, May, 1911, and the September (1911) Rept. of the Bureau of Municipal Research, 261 Broadway, New York City.



summer; distribute literature on cure and prevention in the homes; and, in general, are on duty all the time as a life work, not as a perfunctory side issue. With three hours each morning for inspection and examinations and the afternoons for inspection and home visiting, a nurse can care for about 1,000 to 1,800 children.

Occasionally physicians object to the practice of permitting school nurses to make health examinations or to treat cuts, bruises, sores, and the like. The tendency, however, is plainly to the extension rather than the restriction of their duties. There is no reason why physicians should view this with apprehension, since the nurse's work finds its natural limitations without any need for artificial restriction. In every instance where nurses are employed to make the examinations of pupils, one physician or more ought to be available for special consultation in questionable and unusually important cases.

The hearty cooperation of teachers will also be required in this scheme, and they ought to make use of an Outline for a Health Survey, such as that presented on page 18.

### (3) HEALTH SUPERVISION BY TEACHERS.

The third plan proposed is for towns and small cities which have no means at hand for the employment of either medical officers or school nurses. Under these circumstances it is still possible to detect and to have remedied most of the urgent physical handicaps from which school children everywhere suffer. The plan is far from ideal, but nevertheless teachers ought never to shirk their responsibility toward the health conditions of their pupils, even though very few teachers, or even nurses, have received adequate training for this special work.

In order to help meet the condition that exists in the schools, the following Outline for a Health Survey of school children is suggested. Its use will succeed not only in largely removing the usual obstacles to health supervision in a community, but even where such obstacles do not exist, the plan when put into operation will, it is believed, greatly assist those engaged in the care of children in the schools. The plan consists of two parts: I. An outline for a partial health survey to be made by the aid of the pupils themselves, or, in the case of young children, by the aid of parents. II. An outline for a more extensive health survey on the part of teachers or nurses.

Whether a medical officer and nurse are employed or not does not materially affect the plan. Although, of course, any scheme for health supervision will succeed best where specially trained professional service is available.

The answers of pupils or their parents will furnish some definite information in respect to physical and mental conditions. The ques-

tions under Part II will stimulate and encourage observation with the teacher and will also develop a considerable amount of useful information. With the employment of this survey, no school need wait for the appointment of a medical officer before beginning effective health work. With its use and with the help of a social-worker nurse, excellent results may be expected.

In making the survey the teacher may take her own time. If it is completed in a room of 20 to 40 pupils in a month or six weeks, it should be considered satisfactory, and any teacher should be able to accomplish this without feeling that she is imposed upon. After a pupils' health survey is made, a notice should be sent to the parents in those cases where physical difficulties appear to exist. This notice may be very general and noncommittal in character and should always be signed by the principal of the school. Such a notice has been successfully employed in the following form:

To the parent of ———

The teacher of this child has reason to believe that he is suffering from physical defects, serious enough to need attention. An examination by your family physician or dentist is, therefore, advised.<sup>1</sup>

For further detail you are invited to call at the office of the principal at any time you may find it convenient.

Very sincerely yours,

Principal of ——— School.

A health survey carried out in the manner suggested will result: First, in overcoming most of the prejudice against physical examinations of school children; second, in educating the public in matters of child hygiene and preventive medicine; third, in largely solving the question of expense; fourth, in the discovery of probably 90 per cent of the urgent cases of physical defects; fifth, in decreasing the wear and tear on the teacher; sixth, in increasing the children's health, happiness, and efficiency; seventh, in serving as a useful preliminary examination for a medical officer of schools, so that he may know where to concentrate his attention; eighth, in giving positive information in respect to the kind of hygiene teaching which is most needed.

The significance of all of the answers obtained by the use of the questions in the Health Survey, may not at first be appreciated by a teacher, or other person without medical training, but experience and a little study will gradually make this matter plain.<sup>2</sup>

<sup>1</sup> Some indication of the nature of the defect may be noted on the blank if the teacher so desires.

<sup>2</sup> For further discussion of this Outline, see page 36.

## AN OUTLINE FOR A HEALTH SURVEY.

Part I.—Questions to be answered by pupil or parent, or by pupil with the aid of the teacher.

Name \_\_\_\_\_ School \_\_\_\_\_ Date \_\_\_\_\_

1. How old are you? \_\_\_\_\_
2. In what grade are you? \_\_\_\_\_
3. Have you ever had any serious sickness? \_\_\_\_\_ What was it? \_\_\_\_\_
4. What do you usually eat for breakfast? \_\_\_\_\_
5. Do you eat breakfast every day? \_\_\_\_\_
6. Do you eat a noon meal every day? \_\_\_\_\_
7. Do you drink coffee? \_\_\_\_\_ How much? \_\_\_\_\_
8. Do you drink tea? \_\_\_\_\_ How much? \_\_\_\_\_
9. Do you have your bedroom window open or shut at night? \_\_\_\_\_
10. Have you ever been to a dentist? \_\_\_\_\_
11. Do you own a toothbrush? \_\_\_\_\_
12. Do you use a toothbrush? \_\_\_\_\_
13. Do you sometimes have toothache? \_\_\_\_\_
14. Do you have headache often? \_\_\_\_\_
15. Can you read easily what is written on the blackboard? \_\_\_\_\_
16. Does the print blur in your book? \_\_\_\_\_
17. Do you often see double? \_\_\_\_\_
18. Do you ever have earache? \_\_\_\_\_
19. Do your ears ever run? \_\_\_\_\_
20. Can you hear easily what the teacher says? \_\_\_\_\_
21. Is it hard for you to breathe through your nose? \_\_\_\_\_
22. Do you have sore throat often? \_\_\_\_\_
23. Do you tire easily in school? \_\_\_\_\_
24. Do you work any out of school hours? \_\_\_\_\_
25. What kind of work? \_\_\_\_\_
26. How much? \_\_\_\_\_
27. At what time do you go to bed? \_\_\_\_\_
28. At what time do you get up? \_\_\_\_\_
29. Does anyone else use your toothbrush? \_\_\_\_\_
30. Do you eat candy every day? \_\_\_\_\_
31. How often do you bathe? \_\_\_\_\_
32. Do you often take cold? \_\_\_\_\_

Part II.—Questions to be answered by the teacher or nurse.

## A. General appearance.

- |  | Yes.  | No.   |
|--|-------|-------|
| 1. Is the child healthy appearing? _____   | _____ | _____ |
| 2. Is his color good? _____  | _____ | _____ |
| 3. Is he physically well developed? _____  | _____ | _____ |
| 4. Is he free from apparent deformities? _____   | _____ | _____ |
| 5. Has he a good standing posture? _____   | _____ | _____ |
| 6. Has he a good sitting posture? _____  | _____ | _____ |
| 7. Are the shoulders even? _____   | _____ | _____ |
| 8. Does the child walk normally? _____   | _____ | _____ |
| 9. Are the heels of the shoes worn evenly? _____   | _____ | _____ |
| 10. Is the physiological age of the child apparently equal to his chronological age? _____ | _____ | _____ |

B. Mental conditions.

	Yes.	No.
1. Is the child normally advanced in school?.....	-----	-----
2. Is he mentally alert?.....	-----	-----
3. Does he answer ordinary questions intelligently?.....	-----	-----
4. Does he play normally?.....	-----	-----

C. Nervous conditions.

1. Is the child good-tempered?.....	-----	-----
2. Is he free from abnormal emotion?.....	-----	-----
3. Does he have good powers of muscular coordination?.....	-----	-----
4. Is the child free from spasmodic movements?.....	-----	-----
5. Is he free from the nail-biting habit?.....	-----	-----
6. Does he speak without stammering?.....	-----	-----
7. Is he free from pronounced peculiarity, such as irritability, timidity, embarrassment, cruelty, moroseness, fits, general misbehavior, etc.?.....	-----	-----
8. Is he apparently free from bad sexual habits?.....	-----	-----
9. Is he free from so-called "bladder trouble" (frequent requests to "go out")?.....	-----	-----
10. Is he usually free from headache?.....	-----	-----

D. Teeth.

1. Are the teeth clean?.....	-----	-----
2. Are the teeth sound?.....	-----	-----
3. Are the six-year molars in good condition?.....	-----	-----
4. Has the child been to a dentist within six months?.....	-----	-----
5. Are the teeth regular?.....	-----	-----
6. Does the child use a toothbrush every day?.....	-----	-----
7. Are the gums free from abscesses?.....	-----	-----
8. Are the gums healthy looking?.....	-----	-----
9. Are the upper teeth straight (not prominent)?.....	-----	-----
10. Have decayed teeth been filled?.....	-----	-----

E. Nose and throat.

1. Does the child breathe with the mouth closed?.....	-----	-----
2. Is he free from chronic nasal discharge?.....	-----	-----
3. Is he free from "nasal voice"?.....	-----	-----
4. Has he a well-developed face?.....	-----	-----
5. Has he a well-developed chin?.....	-----	-----
6. Has he straight, even teeth?.....	-----	-----
7. Is he usually free from sore throat?.....	-----	-----
8. Is the hard palate wide (not high and narrow)?.....	-----	-----

F. Ears.

1. Does the child usually answer questions without first saying "What"?.....	-----	-----
2. Is he fairly attentive?.....	-----	-----
3. Does he have a voice with good expression (not expressionless)?.....	-----	-----
4. Does he spell fairly well?.....	-----	-----
5. Does he read fairly well?.....	-----	-----

- |  | Yes. | No. |
|--|------|-----|
| 6. Is he free from earache?.....   |      |     |
| 7. Does he hear a watch tick as far as the average child?.....               |      |     |
| 8. Is he free from ear discharge?.....                                       |      |     |
| 9. Is he free from any peculiar postures which might indicate deafness?..... |      |     |

## G. Eyes.

- |   |  |  |
|---|--|--|
| 1. Are the child's eyes straight?.....  |  |  |
| 2. Is he free from chronic headache?.....   |  |  |
| 3. Does he do his work without fatigue?.....  |  |  |
| 4. Is he free from squinting or frowning?.....  |  |  |
| 5. Is the child free from postures which might indicate eye defects, such as leaning over too near the desk, holding the head on one side, etc.?..... |  |  |
| 6. Are the eyes free from corneal ulcers or scars?.....   |  |  |
| 7. Are the eyes free from redness and discharge?.....   |  |  |
| 8. Are the eyelids healthy looking?.....  |  |  |
| 9. Can the child read writing on the board from his seat?.....  |  |  |
| 10. Have the eyes been tested separately with the Snellen Test Type?.....   |  |  |

## H. Communicable diseases of the skin.

- |   |  |  |
|---|--|--|
| 1. Is the head free from any signs of disease (lice, ringworm)?.....  |  |  |
| 2. Is the skin of the face, hands, wrists, forearms, and chest free from red, somewhat circular patches (ringworm)?.....            |  |  |
| 3. Is the skin of the face, hands, and forearms free from infected spots with crusts and pus (impetigo)?.....                       |  |  |
| 4. Is the child free from red scratched lines and spots on the hands, wrists, forearms, chest, and between the fingers (itch)?..... |  |  |

## I. Eruptive children's diseases.

The following points often indicate the early signs of transmissible diseases in children. They will, of course, not ordinarily be observed at the time of making this health survey:

- |                             | Yes. | No. |
|-----------------------------|------|-----|
| 1. Flushed face.....        |      |     |
| 2. Lassitude.....           |      |     |
| 3. Vomiting.....            |      |     |
| 4. Eruptions.....           |      |     |
| 5. Congested eyes.....      |      |     |
| 6. Discharging eyes.....    |      |     |
| 7. Nasal discharge.....     |      |     |
| 8. Persistent coughing..... |      |     |
| 9. Scratching.....          |      |     |
| 10. Aches and pains.....    |      |     |
| 11. Sore throat.....        |      |     |
| 12. Headache.....           |      |     |



Summary.

Physical development .....  
 Nervous system .....  
 Nutrition .....  
 Mental condition .....  
 Eyes .....  
 Ears .....  
 Nose .....  
 Throat .....  
 Teeth .....  
 Skin .....  
 Eruptive diseases .....  
 Food .....  
 Ventilation .....  
 Coffee habit .....  
 Tea habit .....

Remarks.

The following is an abbreviated card form of the outline:

A TEACHER'S HEALTH SURVEY OF THE SCHOOL CHILD.

Name ..... School ..... Grade ..... Age .....  
 Date .....

	Yes.	No.
1. Have you ever been in a grade more than one year? .....	.....	.....
2. Have you ever had any serious sickness? .....	.....	.....
3. Do you feel strong and well now? .....	.....	.....
4. Do you eat breakfast every day? .....	.....	.....
5. Do you eat a noon meal every day? .....	.....	.....
6. Do you drink coffee? .....	.....	.....
7. Do you always have your bedroom window open at night? .....	.....	.....
8. Have you been to a dentist within a year? .....	.....	.....
9. Do you have toothache often? .....	.....	.....
10. Do you own a toothbrush? .....	.....	.....
11. Do you use your toothbrush every day? .....	.....	.....
12. Do you have a toothbrush of your own? .....	.....	.....
13. Do you have much trouble with headache? .....	.....	.....
14. Can you read writing on the blackboard from your seat? .....	.....	.....
15. Does the print in your books run together or look dim or crooked? .....	.....	.....
16. Do your eyes hurt after reading a good while? .....	.....	.....
17. Do you sometimes see two letters or two lines instead of one? .....	.....	.....
18. Do you often have earache? .....	.....	.....
19. Do your ears ever run? .....	.....	.....
20. Can you always hear the teacher? .....	.....	.....

\* Try to discover what the child usually has for breakfast.

	Yes.	No.
21. Do you go to bed by 9 o'clock?.....	-----	-----
22. Do you go to bed by 10 o'clock?.....	-----	-----
23. Do you bathe at least once every week?.....	-----	-----
24. Have you ever been vaccinated?.....	-----	-----
25. Have you ever had smallpox?.....	-----	-----
Remarks: .....	-----	-----

This child has had the following diseases at the age indicated below:

Chickenpox when ---- years old.	Whooping cough when ---- years old.
Diphtheria when ---- years old.	Pneumonia when ---- years old.
Measles when ---- years old.	Typhoid fever when ---- years old.
Tonsillitis when ---- years old.	Smallpox when ---- years old.
Mumps when ---- years old.	Tuberculosis when ---- years old.
Scarlet fever when ---- years old.	Infantile paralysis when ---- years old.

#### HEALTH SUPERVISION IN RURAL SCHOOLS.

Health work in rural schools presents some problems entirely different from those found in large villages and in cities. Consequently this phase of school hygiene requires a separate presentation.

Rural schools are, with only a few exceptions, entirely unprovided with health supervision of any nature. Yet these are the very places most in need of it. In the larger centers competent doctors are available, and in the cities free medical and dental clinics may always be found, but in the country medical and dental attention is often difficult to obtain. Again, people in the country are little inclined to seek aid from physicians or dentists, simply because they have not yet been educated to do so except in serious cases. It therefore happens that children of the rural schools are in general (contrary to the general impression) more in need of medical and dental attention than the children of larger communities. There is also a common impression that country children are naturally more vigorous than city children. This ought to be true, but unfortunately it is not. In general food is not as well prepared in the country as it is in the city; the available variety is smaller; the houses and schools are less well ventilated; overheating in winter is common; tuberculosis is not so well understood and the chances for "house infection" are therefore greater, and general public sanitation is almost without exception neglected in the country. Children in the country are more exposed to unfavorable weather conditions than are city children. They often walk long distances in extreme heat, cold, or wet; sit in school with damp clothing or wet feet. They almost invariably wear too much clothing indoors in cold weather, and are consequently overheated in the schoolroom and then are chilled on the way home. As an example of this last statement, the writer last winter visited a rural district school on a day when the outdoor temperature was 10° below zero. On stepping into the school the room seemed rather

warm and, upon looking at the thermometer, he found it registered exactly 90°. There was, therefore, a difference of just 100° between the outside and inside temperature—a condition which is not exceptional in rural schools. In spite of the high temperature of this schoolroom, some pupils were present who were wearing heavy woolen “mackinaw” stockings over which were pulled heavy felt high shoes reaching nearly to the knees. Many wore a thick, woolen sweater over a vest, shirt, and undershirt, and in some instances two or more undergarments were worn beneath the outside shirt. In the case of one boy six layers of fairly heavy clothing were counted, and the body was of course bathed in perspiration. Under such conditions it is no wonder that colds and other respiratory disorders are common, and that many country children are out of school on account of various kinds of sickness.

The sanitation of a rural school is usually very bad. The common drinking cup hangs from a nail over the water pail; floors and desks are often very dirty; ventilation is a negligible quantity; outdoor toilets are in unspeakable condition; washing facilities are either not provided at all, or consist of a pail of water, a dirty tin basin, and one common towel.

The common conviction that country children gain vigor by walking long distances to school in all sorts of weather, where they remain at least six hours under favorable conditions, without an adequate noon meal, is only another of the prevalent health superstitions that need correction.

There are probably just as many adenoid, tonsil, ear, and eye cases among country children as among city children, and what is true of these defects is no doubt true of nearly all of the other common physical defects. This point, however, is one which needs careful investigation before exact comparisons can be made. My own somewhat limited experience with children in the rural schools leads me to believe that the proportion of defects among city and country children is about the same, and that in general vigor city school children have on the average a very considerable advantage over their country brothers and sisters.<sup>1</sup>

Under such conditions, how may rural schools obtain some sort of health supervision? Two plans are possible: First, the teacher herself may be obliged to assume the entire responsibility of health supervision; second, county health officers may under some conditions act as school health officers for part or all of their respective counties. The latter plan is the more desirable one, and county health officers ought to be appointed on full time at adequate salaries. A plan of

<sup>1</sup> This statement would, of course, not be true if one compared the children of the same with country children.

this kind would demand the services of well-trained men, and would considerably enlarge the field of preventive medicine in the country. State aid might and should be given to the maintenance of such county health officers, just as it is now given to rural schools. At present the county health officer is often an incompetent medical man; with the plan suggested, none but competent men, to whom are offered adequate salary and reasonable tenure of office, should be considered.

In many cases the teacher herself will have to do the best she can, entirely unaided. She should be prepared to observe and to recognize the ordinary defects of school children. The normal school ought to offer courses for such preparation, but where the teacher has not had training in a normal school she should acquire information in the best manner possible. In order that she may get it, county superintendents should provide study courses and obtain the services of competent physicians for special lecture and demonstration work with the teachers.

Superintendents would do well to follow the plan of Michigan, Minnesota, and Virginia, and employ a specialist to visit as many schools of the State as possible, in order to instruct teachers on school and child hygiene.

#### THE MEDICAL OFFICER IN SCHOOLS.

There is no general agreement in respect to the qualities necessary for school medical officers. Many communities appoint almost any physician who has a fair standing, without reference to his special training or aptitude. In some places men or women have been appointed as school health officers who have had no medical training of any description.

As a matter of fact the position of school health officer in the United States has never been standardized. As conditions now exist, we find the following types of health officers in schools: (1) Well-trained full-time medical officers; (2) well-trained part-time medical officers; (3) well-trained emergency medical officers; (4) inadequately trained medical officers in divisions 1, 2, and 3; (5) hygienists without medical training on part or full time; (6) physical directors who include health examinations as part of their duties, and who may or may not possess medical training; (7) full-time nurses who make examinations; (8) part-time nurses who make examinations; (9) principals or teachers who make partial tests of physical conditions.

Whether a community employs a medical officer for part or full time is a matter of secondary importance compared with competency. In England school health officers must show preparation for their work; but very few physicians in this country have had any special train-



ing in school hygiene. Well-trained physicians may, however, easily acquire the special training necessary. A physician whose preparation has included the usual academic branches and thorough work in biology, general hygiene, physiology, chemistry, physics, pathology, and bacteriology need find no special difficulty in rapidly acquiring the details of child and school hygiene; nor will he in every instance need for this purpose attendance upon special courses of instruction, desirable as the latter undoubtedly are.

Such a physician must, first of all, possess aptitude in handling school children; second, he must understand and be in sympathy with modern pedagogical problems; third, he must possess diplomacy in handling all sorts and conditions of people.

The special knowledge of school hygiene and of pedagogy he may, if need be, acquire through an acquaintance with the now abundant literature on these subjects; the other qualities he must naturally possess, for he can never acquire them through study alone.

A community, then, in selecting a school medical officer, should seek a cultured physician whose training in the fundamentals of medical science has been adequate and who, in addition, possesses aptitude and enthusiasm for the work and a willingness to supply any deficiency he may have along special lines. Having standardized these general qualifications, most other matters will be found to consist of small details of administration.

Large communities, requiring full-time men at adequate salaries, have a right to demand special and somewhat prolonged training, for child and school hygiene is truly a specialty. Ordinarily such training will not be acquired in less than one year in addition to the usual four-year medical course, or six-year "combined courses." The possession of a Doctor of Public Health degree, such as has long been given in England and is now given at Harvard, the University of Michigan, and the University of Wisconsin, will furnish evidence of the highest specialized training and is certainly most desirable when it can be obtained, for school hygiene is after all only one phase of public hygiene.

Having agreed on the main principles which should underlie the appointment of a school health officer, certain details of administration should be considered.

1. The school health officer should in the larger places be controlled by the board of education.
2. A cooperative plan whereby the board of education and board of health jointly control school hygiene may be desirable for special local reasons.
3. School health officers may be provided by combining the position of town or small city health officer with that of school health officer, in which case the expense may be shared by the board of health and



board of education; the appointment may be made by the former board with the approval of the latter. This is an excellent arrangement for large towns and small cities. It has worked out admirably in the city of Rochester, Minn.

4. County health officers, if properly qualified, may be appointed as school officers as well, and in this joint capacity supervise the school health of a village or a whole county, according to the population and distance involved. This will often solve the problem of hygiene in rural schools.

5. The compensation for a school health officer may be based upon the time required of him and upon the amount of his responsibility. A full-time officer should receive from \$2,500 to \$5,000, according to the size of the community.<sup>1</sup> A part-time officer may be paid for one-half of every school day from \$900 to \$2,000. In some instances where, for example, one man is responsible for the entire health supervision of a rather large community, as in Pasadena and San Diego, Cal., the salary should be from \$1,600 to \$2,000.<sup>2</sup> Where less than half of every day is required, it is advisable to base the remuneration upon the number of pupils examined, and not less than 50 to 75 cents should be paid for each examination. At this rate a town with a school population of 600 pupils should pay from \$300 to \$450. Any community with less than 1,800 pupils would do well to adopt the per capita plan of payment as a basis for salary. Voluntary or cheaply paid service is never advisable. It invariably fails after a comparatively short trial.

6. Large cities should employ a director of school hygiene and several assistant directors on full time. A few half-time men may be required, but in general the work of half-time men in large cities will be better done by full-time school nurses.

7. School health officers should familiarize themselves with the following divisions of school and child hygiene: (a) Transmissible diseases; (b) school sanitation; (c) physical defects; (d) mental defects; (e) dental hygiene; (f) the teaching of hygiene; (g) juvenile delinquency; (h) retardation; (i) school hygiene literature; (j) the elements of school architecture.

The position of health officer in schools must no longer be regarded as a cheap job for a cheap man. Schools which are satisfied with inferior officers and teachers will no doubt be satisfied with incompetent medical officers. Progressive schools will appoint only well-trained medical officers who are worthy of the respect of the com-

<sup>1</sup> Oakland, Cal., pays \$3,600; St. Louis, Mo., pays \$3,500; Milwaukee, Wis., pays \$3,500; Minneapolis, Minn., pays \$3,500. All of these salaries are too low for the service given.

<sup>2</sup> Pasadena pays \$1,600; San Diego pays \$1,600. Each of these cities should pay \$2,000.

munities in which they live. American school communities may well study the subject of school health supervision as carried out in England, Germany, Denmark, and some other European countries where the matter has long ago passed the experimental stage. There a school health officer is treated with at least as much deference as the school superintendent or head master.

#### THE STUDY OF EXCEPTIONAL CHILDREN.

Exceptional children of various types have been in our schools since schools began, but only within the past two or three years has any systematic attempt been made to recognize and classify them. Indeed, such recognition and classification was almost impossible until psychologists developed practical, direct methods for the use of schools. Teachers have always been able to point out some "fools" in their classes, and other types of exceptional children have been vaguely recognized, but "fools" have been present who were thought to be merely slow or dull; "misfits" who were supposed to be "fools"; dullards who were considered "misfits"; and so on indefinitely. It remained for clinical psychologists to devise methods whereby these various types might be studied and classified, and among these must be particularly mentioned Lightner Witmer and Goddard of this country, and Binet and Simon of France.

Although exceptional children have for years been studied by various well-known methods in various institutions, no direct means have ever been developed for the study of exceptional school children until recently.

In 1905 Binet and Simon, of Paris, first published their tests, now popularly known as the "Binet test," and in 1908 and 1911 they still further developed and improved this method. These tests have from time to time been modified, enlarged, and improved by various other psychologists, including among others Goddard of Vineland, Huey of Johns-Hopkins, Kuhlmann of Faribault, and Terman of Stanford.

The Binet method still leaves much to be desired, but is nevertheless serving to stimulate teachers as they have never been stimulated before to make careful observations of the unusual types of children under their care. According to recent investigations, and especially those of Goddard, from 1 to 3 per cent of the children in our public schools are mentally defective, and this in spite of the fact that they are frequently unrecognized as such by either their parents or teachers. Such children often present no physical signs of such defectiveness and may indeed be among the best-looking children in a grade. Sooner or later, however, children of this type become retarded, and attention is thus called to them. A safe rule for

teachers to follow is that every child who is retarded in school two or more years without evident reason should be suspected of possessing some degree of mental defectiveness. Not every child who is thus retarded is feeble-minded, but proof to the contrary should at least be established before the child is removed from suspicion. Degrees of feeble-mindedness are present among school children, varying all the way from actual idiocy to the condition of the high-grade feeble-minded person known as the "moron," who is nearly, but not quite, normal.

These children become mentally fixed at various ages, beyond which they do not usually progress much. For example, the writer recently examined a girl of 14 who had been in the first grade for five successive years, and it soon became apparent that she was mentally fixed at about the age of 3. Beyond this degree of intelligence there is no reason to believe she will ever pass. Another child had a chronological or actual age of 14 and a mental age of  $8\frac{1}{2}$ . This boy may perhaps develop to a mental age of a normal child of 9 or 10 years, but this is extremely doubtful. Still another pupil had an actual age of 16 with a mental age of only 9. Another was 12 years old with a mental age of 7. In every one of these cases the teacher knew, of course, that something was wrong, for all were retarded in school, but that it was true feeble-mindedness was never suspected except in the first instance, and even here it was not understood by parent or teacher that the child was practically noneducable. On the other hand, a boy of 14 was considered feeble-minded by his teacher when he was only a misfit.

Every village and city school system visited in Minnesota by the writer has produced cases of retarded, feeble-minded children, and where there was time to make any sort of adequate study of the question the proportion has appeared to be just about that estimated by Goddard, viz, 3 per cent.

The following types of exceptional children require careful attention on the part of teachers: (1) Retarded children (especially those retarded two or more years); (2) slow children (not necessarily retarded); (3) precocious children (especially those who are delicate); (4) delinquent children; (5) misfit children; (6) highly nervous children.

In order to decide whether a child is actually deficient in mentality, some competent teacher in every school system should familiarize herself with the Binet method for measuring the intelligence of children. Such a teacher need not be expected to become an expert or to obtain very exact results, but she may at least in the majority of cases arrive at a conclusion which will establish the fact of feeble-

mindfulness or normality. The exact degree of feeble-mindedness present in a child is a matter for a clinical psychologist or school medical officer to determine, but this, though desirable, is not always indispensable knowledge in the practical classification of school children.

There are several methods by which a teacher may acquire the knowledge necessary to fix the fact of feeble-mindedness, if present, or other peculiar mental conditions.

First. The teacher may attend a few weeks' course of study at such places as Vineland, N. J., under Dr. Goddard; Philadelphia, under Dr. Witmer or Dr. Holmes; or Faribault, Minn., under Dr. Kuhlmann.

Second. The teacher may obtain some training at various universities, especially at Stanford, Johns-Hopkins, University of Pennsylvania, University of Minnesota, University of Pittsburg, and some others.

Third. The teacher may under some circumstances (if her previous training has been adequate) learn a good deal of practical value through the literature of the subject. For this purpose she is referred to the brief bibliography on the mental study of children given on page 54.

In every school system the superintendent, principal, or some teacher with special aptitude should take up in some way the study of the exceptional child, understanding, of course, that the results obtained are merely relative, not exact, but that they furnish, nevertheless, a better basis for classification than any other now available.

A word of caution is required. Do not depend upon the Binet or any other method exclusively. Use common sense. Do not disregard ordinary school methods of judgment. Do not regard the Binet Scale as one which can be used with the certainty of a measuring stick. Make use of any and all methods available in the estimation of the intelligence of exceptional children. Finally, regard your conclusions in most instances as tentative, and carefully watch the development of each case.

The other types of children mentioned, viz, the dull, precocious, nervous, and misfit, require as careful study as the feeble-minded. Indeed, they deserve perhaps more attention, because these are the types which under proper discipline make satisfactory progress, and may be saved years of unnecessary sorrow and ineffective effort.

In Minnesota during the school year of 1912-13 several school communities have undertaken the study of exceptional children with a marked degree of success. Among these should be mentioned Faribault, Owatonna, Cloquet, St. Peter, Austin, Hibbing, Minneapolis,

Duluth, and Rochester. The five normal schools located at St. Cloud, Mankato, Winona, Duluth, and Moorhead are also undertaking some effective study of the subject of mentally divergent children. The excellent beginning thus made should be extended to every school district in the State and in other States as well. When this is done, the schools will not only be relieved of a tremendous drain upon their daily efforts, but a large sum of money will be saved every year in avoiding the expense of carrying hopeless repeaters. That sum might well be expended for the special education of pupils who receive little or no profit from the ordinary public schools.



## **PART II.—STATE ORGANIZATION OF SCHOOL HYGIENE IN MINNESOTA.**

In order to guide and assist local school health departments, whether organized by boards of education or boards of health, we should have State divisions of child hygiene under the various State boards of health in cooperation with the department of public instruction. Minnesota is at the present time the only State that has thoroughly organized such a division.<sup>1</sup> In this State the work is carried out under a special director of school hygiene who, under the direction of the State board of health, maintains a clearing house of information at the office of the board and travels about the State in the interests of the work.

The general procedure of the director at each place visited is as follows:

1. A general meeting with all the teachers of the local school system, at which are explained methods for the physical observation of school children. At these meetings practical demonstrations or clinics are held with one or more grades of school children present, usually a fourth or fifth grade.
2. Individual demonstrations to the teachers at the various grades in different schools.
3. Examination of special cases.
4. A second meeting with all the teachers for the purpose of discussion of the results of observations in the grades.
5. An open meeting devoted to the interests of parents of school children.
6. Inspection of school buildings and premises.
7. Organization of the study of mentally deficient children.
8. Recommendations for health promotion addressed to the board of education and adapted to the conditions discovered.
9. Aid furnished in organizing school health departments according to one of the three or four standards which have been adopted.
10. At normal schools short courses in child hygiene are given.

The following letter, which was sent to the various school superintendents of Minnesota, will explain the purposes of the campaign for

<sup>1</sup>Virginia has since 1912 undertaken limited State health supervision.

school hygiene undertaken by the writer of this report, under the direction of the executive officer of the State board of health:

RELATING TO HEALTH SUPERVISION OF SCHOOL CHILDREN.

STATE BOARD OF HEALTH,  
*St. Paul, August, 1912.*

The State Board of Health and the Department of Public Instruction of Minnesota wish to lend their aid to the schools of the State in promoting health supervision of school children. To this end, the State Board of Health has engaged the services of Dr. Ernest B. Hoag, formerly of the University of California and at present on leave of absence from Stanford University, to help Minnesota towns and cities to organize health work in schools.

Dr. Hoag will travel about the State, spending from one day to several days, as may be required, in the various places needing his services.

It is proposed to demonstrate to towns, cities, and counties that rational conservation of the mental and physical health of our school children is possible and practical with the means already at hand. Three plans will be proposed:

- (1) Organization with a medical officer and nurse or nurses.
- (2) Organization with school nurse or nurses only.
- (3) Organization by the employment of a simple nonmedical health survey on the part of the teachers only. Such a survey is provided by a series of questions based upon ordinary observation of physical and mental conditions. The outline for this purpose will be furnished by the State Board of Health—one for each child. No community need wait for the employment of a medical officer in order to begin sensible health observation of school children.

Dr. Hoag will be available for lectures on child hygiene, medical supervision, and related topics, for clubs, institutes, and various other organizations. The State Board of Health will maintain in its office in the Capitol building, St. Paul, a clearing house of information concerning child hygiene, medical supervision, the teaching of school hygiene, sex hygiene, and the like. Please make full use of the opportunities furnished in this new work. Your cooperation is earnestly desired.

For further information address Dr. H. M. Bracken, Secretary, State Board of Health, St. Paul; or Mr. C. G. Schulz, Superintendent of Public Instruction, St. Paul.

Requests for assistance in organizing departments of school hygiene and health supervision were received from a large number of towns and cities, and from these the secretary of the State board of health selected 67 to be visited by the special director of school hygiene. It was found quite impossible to meet all the requests from the various superintendents of the State, and it was evident from the beginning that the demand for aid in health organization in schools was far greater than could be met by any possible means at hand. It was, therefore, decided to select in the main the larger places of the State, in order that the influence of the work might extend as widely as possible.

In order to indicate the usual methods of procedure, several reports of the director to the secretary of the board are here given.

## RECORD OF TRIP TO GRAND RAPIDS, MINN., AUGUST 28-30.

Population, 2,000.

I left St. Paul Tuesday, August 27, arriving at Grand Rapids on the 28th, to lecture at the Itasca County Teachers' Institute.

On the afternoon of August 28, a lecture was given to the teachers assembled on the topic, "The Health Grading of School Children." The teachers were much interested in the plan proposed, which was as follows:

(1) A series of leading questions to be answered by the pupils themselves when old enough, and when not old enough by their parents, concerning their own physical condition, these questions to be answered on blanks furnished by the teacher and given to her by the State board of health.

(2) A series of questions, nonmedical in nature, depending merely on careful observations, to be answered by the teachers themselves on the same blanks as above mentioned.

The teachers showed a disposition to cooperate heartily in this plan. They were told that they could receive the blanks mentioned at any time upon application to the secretary of the State board of health.

In the evening of the same day a public lecture was given which was attended by both the people of the village and the teachers. The subject of the lecture was, "The Physical Observation of Children," and it was illustrated by lantern slides. Interest was shown in this lecture by the fact that a considerable number of questions were asked by those present.

On the morning of August 29 a lecture was given on the topic, "How to Teach Hygiene in Schools." A plan was proposed by which textbooks are to be used largely as reference guides, but the course is to be based upon common sense application of health principles to local needs. It was announced to the teachers that an outline for such course had been prepared and would be furnished later by Mr. C. G. Schulz, superintendent of public instruction.

*Relating to medical supervision of schools.*—Prof. Freeman, district superintendent of schools in Itasca County, held a conference with me in respect to the organization of medical supervision in the schools of Grand Rapids. He stated that \$1,000 was available, in addition to the services of a district nurse, for this work. He requested information on how to make the best use of the money available. The following plan was proposed to him:

That he base the salary of a school physician on the rate of \$1 per pupil and expect of this physician a complete health survey of all school children, with a careful record for each child; and in addition a general supervision of the sanitation of the school buildings and grounds and such special work as he may be called upon to do by the superintendent of schools, particularly in respect to communicable diseases and the unhygienic conditions of the children as relating to certain parasitic conditions of the skin and head.

It was proposed to Prof. Freeman that the person appointed to the office of school physician ought to be allowed sufficient money to cover the expenses of a visit to St. Paul, Minneapolis, and Milwaukee, in order that he might make a thorough study of health supervision of schools in the three cities, and it was further suggested that he consult with Dr. Keene, of Minneapolis, the State board of health of Minnesota, and Dr. Barth, of Milwaukee. Prof. Freeman assured me that the plan as outlined above would be put into operation. I feel that Grand Rapids is to be congratulated on its plan for organizing what seems to me an ideal method for a village of its size, and I hope that

other villages of similar size will take this plan into consideration in respect to their own needs.

[NOTE.—In September medical inspection of the Grand Rapids schools was organized and placed in the hands of four local physicians. This is not an ideal plan, as there is no one person responsible for the work. An investigation of the work done by these physicians was made by me in November, and it is only fair to say that they had examined every pupil in the schools, made careful records on card copies from the Duluth plan, and had in general accomplished much good.]

#### RECORD OF TRIP TO HIBBING, MINN., NOVEMBER 11-13.

Population, 15,000.

The Hibbing schools were visited on November 11 to 13, inclusive. The teachers were met as usual and the use of the Outline explained to them, and afterwards 14 grades were visited and the children in those grades observed. About 20 special cases were called to my attention by teachers, and these were given a thorough examination, and proper recommendations were made to suit each individual case. I found a special teacher employed in the Hibbing schools for the study of retarded pupils. This teacher has had extensive training, is competent, and is accomplishing much good. Her special effort is, first of all, to distinguish between retarded children who are curable and retarded children who are incurable—in other words, to distinguish between dull and mentally defective children. She is thoroughly familiar with the use of the Binet system, and already has made use of it in connection with a large number of children. The effort at Hibbing is to give the individual child as much attention as possible and to provide proper education for mentally peculiar children, whether their condition is due to dullness or mental defectiveness. Two ungraded rooms have already been established, and the teacher of one of them has had unusual opportunities for the study of children of this type. Children in the Hibbing schools are advanced by subjects rather than grades. Therefore each grade is divided into several divisions, sometimes as many as four or five, in order to make this form of promotion possible. Taking everything into consideration, the school system at Hibbing is the best that I have yet had the opportunity to observe.

In respect to sanitation the schools are in excellent condition. Hibbing schools are provided with medical inspection, and for this purpose have employed Dr. Lea for his full time, paying him \$1,800 per year for his services. The doctor occupies three rooms in the high-school building—a waiting room, a consultation room, and an emergency room. The equipment of the medical officer is the most complete I have seen in any school, either in Minnesota or elsewhere, and leaves nothing to be desired. The equipment includes practically everything that would be found in a modern physician's private office. The schools have spared no expense in this equipment. It includes a complete laboratory outfit of the very best sort; apparatus for the examination of the eyes, ears, nose, and throat, such as is used by specialists; a hospital bed ready for occupancy in case of emergency; an operating table for use in case of accidents; and a well-equipped medical library. The medical officer spends several hours each day in his office, so that teachers may send pupils to him for examination. During the rest of the time he visits schools in the district, which covers a very considerable area. Free medical treatment is given to school children by the school physician of Hibbing in such cases as are unable to secure regular medical attention.

The following suggestions were made in respect to the present medical inspection system at Hibbing:

(1) A school nurse should be employed at once, for it is apparent that notices sent to parents by the school physician receive very little response. This is explained to a large extent by the fact that there is a large foreign element. A school nurse who has had some training in social service work could accomplish wonders in this community.

(2) The purchase of about 20 books for the school physician's library on subjects pertaining to school hygiene was recommended; also subscription to a number of journals on the same topic.

(3) It was recommended that the teachers cooperate to a greater extent with Dr. Lea by making use of the Health Outline provided by the State board of health, so as to relieve him from the necessity of examining a great many perfectly normal children, and also to acquaint the teacher more fully with conditions present in her own room.

(4) It was demonstrated to the teachers that the use of the Health Outline would provide them with information about conditions in respect to the school children which would form the best possible basis for practical hygiene instruction.

All of these suggestions were accepted by the superintendent of schools and will, it is believed, soon be put into effect.

I was requested to spend two days more in the Hibbing schools in the near future to make an examination of special cases and to offer suggestions relating thereto. The conditions of the homes of the children in the Hibbing schools are, in many instances, bad. For this reason more careful attention should be paid to proper hygiene here than in most schools, and there is urgent necessity for the services of a reliable and tactful school nurse.

#### RECORD OF TRIP TO CHISHOLM, MINN., NOVEMBER 14-15.

Population, 7,685.

I visited Chisholm on November 14 and 15. In respect to the sanitation of the Chisholm schools there is nothing to recommend. They are in every respect all that could be desired. Not a single room was lacking in proper ventilation or proper lighting, and all other sanitary conditions meet the highest possible requirements of a school system. I found paper towels in use, individual soap containers, sanitary sweeping employed by the use of oiled sawdust, a perfect system of ventilation by the direct-indirect method, ventilated coat closets, lighting in every case sufficient and from the left side, halls splendidly lighted, walls tinted in the most desirable manner, and altogether the schools most attractive and artistic. The attention of all the other schools of Minnesota ought to be called to the ideal sanitary conditions existing in the Chisholm schools. The only point which could be criticized was that of temperature. Some of the rooms registered a temperature of 74 or 75, which is 6 or 8 degrees higher than desirable.

The employment of a social service school nurse was recommended and the idea was favorably considered by the board of education.

#### RECORD OF TRIP TO MANKATO, MINN., OCTOBER 15-24.

Population, 11,000.

Mankato was visited October 15 to 24. In addition to the usual preliminary meeting with teachers, a second meeting after the demonstration of work in the grades was held for the discussion of results obtained. All of the grades



in the schools above the second were visited by Supt. Sperry and myself. A parents' meeting was held in the high school the evening of October 18. As the audience was small, the occasion was turned into a round-table discussion, in which I was called upon to answer many questions. Five lectures were given to the senior class of the normal school on the general subject of "Physical observation of school children."

All of the grades in the normal training school above the second were visited in the usual way. Demonstrations were given before the teachers of the normal training school.

Most of the schools of Mankato were built many years ago, and therefore are open to criticism from a sanitary point of view. While the ventilation is good in nearly every instance, the lighting is frequently bad. It was interesting to notice, however, that the paper towel, the liquid soap dispenser, and the drinking fountain were installed everywhere. The janitor service seemed to be excellent.

One of the principals in Mankato has undertaken to make a special study of the mentally peculiar child and for this purpose is to make use of the Binet system after some instruction from me. Personally, I observed in the Mankato schools eight mentally defective children.

Mankato needs the services of a school nurse on full time. It would also be very desirable if an arrangement could be made with the local health officer, who is not in the practice of medicine, to devote a portion of his time to health work in schools. The present health officer is admirably adapted to this sort of work.

#### THE USE OF THE HEALTH OUTLINE.<sup>1</sup>

The Outline for the Health Grading of the School Child was put into use in every town and city visited. Teachers have found it easy to use, and requests for copies of it have been received from nearly every State in the Union, indicating that schools everywhere are looking for methods of health observation which teachers can readily employ.

In order that teachers might understand the significance of answers received to the questions of the outline, the following explanations were given in some detail at meetings held with the teachers:

#### SUGGESTIONS FOR USING THE OUTLINE FOR HEALTH GRADING.

1. Call the pupils, one at a time, to the desk. Begin with Part I, and ask the questions as they appear in the outline and write the answers yourself. One can get a great deal of information by noticing how the pupil answers the question. Mistakes in answers may often be corrected in this way, when they would not be observed if the pupil were to answer the questions himself in his own writing at his seat. Do not suggest the answer.

2. In asking questions about headache and earache or any other questions where the word "frequent" appears, use the word "frequent" as meaning once a week or oftener.

3. Be perfectly sure that the pupil understands the question, and test his answer in a number of different ways where you have any reason to doubt the reply given.

4. It is desirable to have the Outline for Health Grading completed for every pupil in your room before the arrival of the visiting physician (if there is one).

<sup>1</sup> See also p. 18.

5. After the completion of the health grading in your room, on your part, make a list of the pupils who you think ought to receive further examination by a physician or nurse. Where only the minor difficulties are discovered, it is not necessary to call the attention of a physician to these points, although it may sometimes be necessary to inform the parents of what you discover by means of the blank notice. Do not place any pupils on the list to be examined by a physician unless you have a definite reason for doing so.

6. Make a list of all the retarded pupils in your room, and of this number indicate those whom you suspect of being mentally deficient.

#### SIGNIFICANCE OF THE ANSWERS TO THE QUESTIONS OF PART I OF THE OUTLINE

The answers in Part I will furnish information on the following points: (1) Retardation, (2) influence of previous sickness on present condition, (3) relation of home habits to individual health, (4) condition of the teeth, (5) condition of the eyes, (6) condition of the ears, (7) condition of the nose, (8) condition of the throat, (9) amount of work done out of school, (10) food habits.

*Defective teeth.*—If a child in the third grade or above has never been to a dentist, it is presumptive evidence in most cases that his teeth are defective. Testimony of aching teeth always indicates defective teeth; sound teeth never ache.

In nearly every room it will be noted that several pupils make use of a family toothbrush. Nothing could more effectually spread disease than this practice. Practically every disease that we know is spread by the secretions of the nose and throat. This clearly indicates the danger from the use of the common toothbrush.

*Chronic headache.*—Chronic headache in school children is usually caused by one of the following conditions: (1) Eyestrain; (2) indigestion; (3) constipation; (4) auto-intoxication, or absorption of the products of fermentation from the intestines; (5) decayed teeth; (6) bad ventilation at home, or at school, or both; (7) malnutrition; (8) adenoids.

Although there are some other causes of headache, they are so infrequent as to be negligible here. Of the above causes given, eyestrain, constipation, and auto-intoxication are probably the most common.

*Eyestrain.*—Blurring of the print always indicates some form of visual defect and is therefore positive evidence of eyestrain. It is always well to ask if the pupil habitually sees double; also if he notices spots before the eyes, if the letters appear to move, or if he sees colors.

*Earache.*—Chronic earache always indicates more or less serious trouble. It means that inflammation is present in the ear. In many cases earache is due to the presence of adenoids. Adenoids are thus often indicated by earache. Earache, if not corrected, very frequently leads to more or less permanent deafness.

*Discharging ears.*—This condition is more serious than earache and indicates that the disease process in the ears is advancing rapidly. The condition should always be treated at the earliest possible time. Always test the hearing of pupils who have earache or ear discharge by means of the watch tick or whispered words. As a check in this test, always test children with normal hearing at the same time.

*Difficult nasal breathing.*—Children who complain of constant difficulty in breathing through the nose usually have adenoids. Sometimes the obstruction is in the nose itself and in this case is due to enlarged turbinates or polyp. Many children with adenoids will say they can breathe easily through their nose simply because they have never breathed normally and do not, therefore, know

what nasal breathing means. Inquire if the child's mouth is usually dry when he wakes in the morning.

*A frequent sore throat.*—This condition nearly always indicates diseased tonsils, and diseased tonsils should always receive prompt attention. If the tonsils are much enlarged, adenoids will nearly always be found present. On the other hand, adenoids are often found present when there is no enlargement of the tonsils. Rheumatism is often associated with diseased tonsils. So-called "growing pains," stiff neck, and tender aching joints are common symptoms of rheumatism.

#### SIGNIFICANCE OF ANSWERS TO PART II.

*General appearance.*—There are many reasons for poor general appearance. The most common is probably general malnutrition, due commonly to insufficient food, or the wrong variety of food, or the wrong use of food. Some other causes are the following: Adenoids, diseased tonsils, bad ventilation, very rapid growth, tuberculosis, a recent sickness of some sort, very defective teeth.

*Peculiarities in posture, walk, etc.*—These conditions may be explained in general by weak muscles, due to rapid growth; spinal disease; flat-foot or broken arches; rickets; tuberculosis; paralysis from some serious disease, such as infantile paralysis, meningitis, or diphtheria.

*Mental condition.*—A child who is two years or more retarded in school; who does not play normally, who is not mentally alert, should always be suspected of being mentally deficient. He should be tested by the Binet method. It is necessary to distinguish between merely dull and mentally deficient children. Many mentally deficient children show none of the physical signs of such a condition, and they may be the best looking children in the class. Be careful not to overestimate the intelligence of the old, mature child who is two or three years retarded, even though he does fairly good work in a class of much younger, less mature children. He must be judged by the ability of children of his own age and not by children younger than himself.

*Nervous condition.*—Stammering is nearly always a nervous condition and not usually due to physical defects. Nail-biting is almost never a mere habit, but is caused by an unstable condition of the nervous system. Spasmodic movements should always be carefully observed, as they often indicate St. Vitus dance or habit spasm. True hysteria is very seldom observed in school children. General nervousness is indicated by a lack of repose, too much emotion, and inability to keep quiet, and may be due to a large number of causes. Sometimes the home conditions will offer the explanation. Often the child is from a nervous family. Sometimes it is due to bad sexual habits, but more often the sexual habits are due to an unstable nervous system. So-called "bladder trouble" is practically always a sign of general nervousness and usually has nothing to do with the condition of the kidneys at all.

*Nose and throat.*—Adenoids are usually indicated by a nasal voice, frequent colds, crooked and prominent teeth, mouth breathing, and mental dullness. Not all of these conditions are always present, but some of them are. Adenoids and enlarged tonsils are usually associated.

*Ears.*—Never forget the relation between adenoids and earache, discharging ears, and deafness. Constant bad spelling sometimes indicates deafness.

*Eyes.*—Children with crossed eyes always have a defect of vision, and the crossed eyes will in time usually become blind or nearly so. These children should have properly-fitted glasses at the earliest possible moment. This will often straighten the eyes and save the sight. Defective eyes are often indicated by red lids or red eyes, blurred vision, or double vision. The teacher should test the sight of each child by using the Snellen test type.

**Skin.**—Any sudden eruption should always be noted, as possibly indicating a contagious disease, such as measles, chickenpox, scarlet fever, or the like. No sort of skin disease should ever be ignored. The cause of it must be discovered.

**Examine the teeth of the children.**—Stand in a good light, have the children file past you and open their mouths as widely as possible. Take a quick look at all of the teeth and make a note of each child who has defective teeth. It is not necessary to note the number of such teeth as every defective tooth ought to receive immediate attention.

**Some general observations.**—Try to discover what children always have coated tongues. This is almost always due to constipation. Try to correct this condition among children, as it is extremely common and usually receives very little attention at home.

Attempt to learn the home habits of the children under your care. You will be surprised to learn how many keep very late hours. Try to learn the cause for this. Try to learn how many children eat candy every day. Talk to them about bathing habits and learn what their habits actually are in this respect. Make a list of the children who live in families where there is chronic sickness and discover what the sickness is. Always be on the alert for signs of children's contagious diseases, when they first manifest themselves. Use the information obtained by the outline for practical teaching in matters of hygiene in your particular room. This will furnish a more effective basis for useful health-teaching than anything else.

The State board of health offered to schools that desired to organize school health work blanks for recording examinations. It is important that school health records be standardized, and it was therefore recommended that the record cards furnished by the State board of health be employed in all schools about to organize health supervision. The record cards as furnished by the board are reproduced below.

Either a general health survey or a school clinic was carried on in every school community visited. In general the results of these surveys and clinics are very similar, and for this reason it is not considered advisable to publish all of the results obtained by the director of school hygiene during the year's campaign. The statistical results obtained in five typical cities follow:

*School health surveys.<sup>1</sup>*

OWATONNA.

Number of pupils.....	34	34	36	37	34	35	45	28	38	32	46	35	27	127
Grade.....	3	3	3	3	4	5	5	5-6	6	6	7	7	7-8	8
Coffee..... (pupils using).....	23	11	22	18	27	28	26	20	28	28	33	28	19	106
Tea.....	13	10	15	9	5	10	10	19	9	14	10	19	6	56
No ventilation in bedroom.....	15	17	26	12	16	25	24	13	10	21	0	1	4	20
Headache.....	8	5	14	13	10	13	8	7	16	3	17	6	8	23
Poor vision.....	9	3	0	7	8	4	6	5	5	7	6	6	3	14
Double vision.....	4	4	2	11	4	5	7	3	7	1	1	1	1	1
Runny nose.....	1	2	0	2	2	2	4	0	5	2	0	1	0	3
Poor hearing.....	6	1	1	5	8	2	5	3	1	5	1	1	1	6
Diseased tonsils.....	1	1	1	5	8	2	5	3	1	5	1	1	1	13
Nasal obstruction.....	3	5	10	0	5	5	5	7	3	13	5	1	1	15
Daily use of toothbrush.....	22	10	16	7	15	14	15	9	6	21	7	27	11	11
Toothache.....	9	7	20	11	20	15	9	11	11	9	10	10	10	11
Common toothbrush.....	6	7	14	0	5	1	1	1	1	1	1	1	1	1
Bad teeth.....	23	28	18	22	21	28	12	22	12	12	14	19	19	24
No form of protein for breakfast.....	15	20	15	22	17	42	23	23	16	26	20	25	25	25
No fruit for breakfast.....	26	34	16	27	20	31	34	33	28	28	28	28	28	28

<sup>1</sup> Blank spaces indicate that the question was not asked or the examination was not made.



## School health surveys—Continued.

## CHISHOLM.

Number of pupils.....	41	31	28	40	37	36	37	35	36	30	29	21	24
Grade.....	3	3	3	4	4	5	5	6	6	7	7	8	8
Coffee..... (pupils using).....	36	26	24	37	34	32	33	27	34	24	20	20	18
Tea.....	15	21	13	21	22	22	7	8	17	21	11	6	19
No ventilation in bedroom.....	32	12	23	24	21	22	31	21	22	14	2	8	5
Headache.....	6	6	8	12	6	16	6	15	8	8	6	4	4
Poor vision.....	0	0	7	0	5	0	10	11	5	0	0	2	2
Earache.....	1	2	5	6	1	3	6	0	3	0	1	0	3
Running ear.....	1	2	3	3	0	2	0	0	1	0	0	0	0
Poor hearing.....	0	4	0	0	2	1	0	2	1	3	1	2	2
Nasal obstruction.....	0	0	4	4	4	6	2	8	2	1	3	2	2
Toothache.....	8	9	22	13	15	22	11	17	10	4	8	12	12
Double vision.....	3	3	3	3	3	6	2	2	2	2	2	2	2
Common toothbrush.....	5	8	8	7	11	14	7	11	14	11	9	11	11
Bad teeth.....	21	22	21	32	30	19	26	20	17	14	11	9	11

## HIBBING.

Number of pupils.....	24	26	31	20	32	28	37	30	38
Grade.....	3	3	3	4	4	5	5	6	6
Coffee..... (pupils using).....	21	23	16	16	28	15	29	23	30
Tea.....	2	2	9	1	12	6	2	10	7
No ventilation in bedroom.....	21	22	23	22	16	17	30	12	13
Headache.....	5	2	2	5	3	16	4	13	13
Poor vision.....	2	0	1	2	0	2	5	13	13
Earache.....	1	0	3	0	8	2	6	2	4
Running ear.....	0	0	2	4	0	1	0	2	4
Poor hearing.....	0	2	1	1	1	1	1	2	2
Nasal obstruction.....	0	2	1	1	1	1	1	1	1
Toothache.....	9	5	9	6	10	2	16	7	9
Double vision.....	2	2	2	2	2	2	2	2	2
Common toothbrush.....	23	21	21	22	23	22	21	18	24
Bad teeth.....	23	21	21	22	23	22	21	18	24

## FARIBAULT.

Number of pupils.....	29	33	28	29	20	30	27	34	24	28	19
Grade.....	3	3	3	3	4	4	5	5	6	7	8
Coffee..... (pupils using).....	20	22	22	21	12	18	20	29	18	17	16
Tea.....	8	13	8	7	8	13	13	14	1	8	5
No ventilation in bedroom.....	15	11	8	18	11	20	10	14	6	6	0
Headache.....	10	17	19	8	1	9	9	4	11	0	0
Double vision.....	1	1	1	1	1	1	1	1	1	1	1
Poor vision.....	6	5	5	0	0	1	3	1	2	0	0
Earache.....	3	7	3	12	0	3	5	7	3	3	1
Running ear.....	1	2	0	6	0	0	1	0	8	0	0
Poor hearing.....	4	7	7	0	0	0	0	2	2	2	2
Nasal obstruction.....	4	2	1	3	5	3	2	4	6	0	0
Daily use of toothbrush.....	12	18	13	8	9	9	8	8	16	3	3
Toothache.....	16	14	17	17	7	9	12	9	9	0	0
Common toothbrush.....	2	4	1	5	1	3	1	1	1	1	1
Bad teeth.....	19	31	20	24	11	20	23	17	17	8	3
No form of protoid for breakfast.....	20	19	19	22	6	19	11	30	13	20	19
No fruit for breakfast.....	25	16	25	17	13	28	24	34	15	27	18

## RED WING.

Number of pupils.....	23	36	34	31	29	24	48	38	30	75	27	29	61
Grade.....	2-3	4	3-4	4	4	4	3-4	4-5	(?)	5-6	6	7	7
Coffee..... (pupils using).....	18	27	29	28	26	22	41	27	27	63	24	25	43
Tea.....	6	14	11	7	6	7	13	13	6	28	9	13	11
No ventilation in bedroom.....	6	18	23	20	22	15	35	24	17	26	14	0	26
Daily use of toothbrush.....	11	9	9	13	0	4	12	11	10	24	8	10	21
Common toothbrush.....	2	4	6	6	6	5	5	5	5	5	5	5	5
Toothache.....	10	19	22	8	20	10	31	23	9	48	16	13	26
Bad teeth.....	18	19	23	7	22	14	31	16	12	37	13	14	21
Headache.....	5	8	6	12	2	0	17	13	5	14	10	5	10
Earache.....	3	2	6	16	8	1	20	8	1	8	8	0	5
Running ear.....	0	0	2	1	0	1	3	3	0	8	5	0	0
Poor hearing.....	0	1	0	0	0	0	0	0	0	1	2	2	2
Nasal obstruction.....	2	3	3	4	0	1	0	0	0	11	3	1	2
Diseased tonsils.....	1	2	1	0	0	0	1	0	0	6	2	2	6
Poor vision.....	1	10	3	1	0	0	7	6	0	20	4	2	6
Double vision.....	1	1	1	1	1	1	1	1	1	1	1	1	1
No form of protoid for breakfast.....	11	20	30	1	19	12	37	20	20	18	15	48	48
No fruit for breakfast.....	14	30	31	37	36	43	43	38	38	13	22	48	48

Ungraded.



## SCHOOL CLINICS.

During the first part of the year's campaign the "Health survey" plan was followed and from 200 to 700 pupils were "surveyed" in each school community. The director, accompanied by the superintendent of schools, visited as many grades as possible, for the purpose of demonstrating health conditions to the individual teachers and in order to observe the sanitary conditions present in the various rooms.

This plan, although valuable, proved too irksome and time-consuming and was accordingly supplanted by the "School clinic" method.

From 50 to 150 pupils from various grades were assembled in the presence of all of the teachers of the grades. The director in charge of the "clinic" then proceeded to demonstrate the health conditions of the pupils selected for examination. To indicate exactly how the demonstration, or "School clinic," was carried out, a report of the clinic at Albert Lea is given here.

## THE SCHOOL CLINIC.

**THE DIRECTOR.**—The object of this demonstration is to show teachers how easy it is to detect the ordinary physical defects from which children suffer. Most people have an idea that it is necessary to have an expert go into the schools to find these handicaps, but as a matter of fact any teacher after a little instruction in the matter can readily learn how to discover the ordinary handicaps almost as well as any expert can. Only the larger places in the country have any health supervision of schools that is really worthy of the name, and the reason is that they think only experts can do the work. Now, as a matter of fact, all the schools everywhere need to have this sort of health work, and the only way they can obtain it in many instances at present is to have the teachers themselves attack the problem.

The ordinary handicaps that we find in children are pretty much the same everywhere we go, whether it is in a California town or in a Minnesota town; and the proportion of the defects that we find is practically the same everywhere, so that I could say in advance in this place just about how many cases of adenoids will be found, how many cases of visual defects, how many of chronic earache, how many of headache, how many of defective teeth, etc.

We are not looking for sick children in the schools, as that word is ordinarily used, and we do not often observe sick children, as a matter of fact, but we do find a very considerable number of children who have physical or mental handicaps which interfere with their school progress, and it is these handicaps which we wish to discover and, if possible, to have corrected. We do not realize, for instance, that a large number of children suffer from chronic headache who never say a word about it unless they are questioned. They take it as a matter of course, and they become accustomed to such chronic headache. We do not realize that a very considerable proportion of children have more or less chronic earache, and yet never mention it unless the earache is so bad that they can not sleep at night. We do not realize that a large number of children have toothache, some of them most of the time; that they have visual defects, so that in many cases they do not read comfortably or well. They suffer from various handicaps of this sort and never say anything about it, simply because they are accustomed to the condition and very often know no other; in other words, they have no perspective; they have no standard except their own. Children in the main never complain about their physical handicaps unless they are so serious as to actually make them sick, and this is a point which we must always remember in dealing with them.

Now, what I want to do here this afternoon is to ask these 85 children some very simple, common-place questions, just as I should like to have you do with your children in the various grades, and the answers to these questions will indicate pretty accurately the sort of physical handicaps which are present. I shall have to ask the questions of the whole group and not take down any individual names, but you teachers ought to follow pretty much the same process and also to record each child's examination separately, and make it a permanent school record.

As a matter of fact, at least 25 per cent of school children have visual defects of one kind or another. These are ordinarily discovered by the use of the test-type card, but without any card or apparatus of any sort you can still discover a very considerable number of eye defects by a simple question. In order to demonstrate this point I am going to ask these children the question and they will answer by rising, and the question is this—now, Children, I want you to listen carefully and do not answer until I am all through: How many of you notice that when you read in your books the print is hard to see or that it often looks dim, or perhaps crooked, or that you see two letters instead of one, or two lines instead of one, or that in some way you find it hard to read?

The number of children who are standing is 18, and we shall now try to discover by some further questions whether these children really know what they are talking about or not. The children will give answers of a certain type, and these answers will be exactly such as children give in other places and almost in exactly the same words, for the simple reason that they have the same defects that children in other places have. I shall ask the teachers to listen carefully to the responses which are made when we ask the children about their eyes.

I am going to ask this boy now how the print looks when he reads in his book. He replies that "it looks blurred." The next boy says that the print "looks dark," but I am going to ask him what he means by "dark." He replies that he can not see it, and I notice that he is troubled with what is technically called "squint eye" or crossed eye. Let us ask him if he ever sees letters or lines double. He says that a good deal of the time he does see letters and lines double, which is nearly always the case in instances of this sort. I want to say to the teachers right here that cases like this ought always to receive the promptest kind of attention, because the vision in the crossed-eye deteriorates rapidly; and in many cases, if glasses are not properly fitted before the child is 8 or 9 years of age (and often earlier) the vision has already gone to the extent of 50 to 100 per cent. I shall test this boy's vision and see how much he still retains in the crossed eye. I have tested him by first standing away about 20 feet and holding up my fingers and having him tell me the number he sees. He fails absolutely at a distance of 20 feet; then he fails at a distance of 15 feet, and he continues to fail until I get within 9 feet of him. At this distance and in a strong light he can tell how many fingers are held up in front of the crossed eye. This shows that his vision has very greatly deteriorated in this eye. If glasses had been properly fitted to this boy's eyes several years ago, most of the sight could have been saved, and this very well illustrates how absolutely necessary it is to correct the vision in any child who has a tendency to crossed eye. If glasses are put on early the eyes will, in the majority of cases, be straightened without any operation; and most of the vision, if not all of it, will be retained. I have just asked the boy how long he has been wearing glasses. He is 11 years old, and he says, "Only a little while." The trouble is that the glasses were procured too late.

I have just asked a little girl how the print looks to her, and her reply is that when she looks in her book she sees "two lines just the same." This is another case of "squint eye" or crossed eye. I shall test her eyes in the same manner that I did the boy's. This child's vision is exactly the same as that of the boy. She reads figures at a distance of about 9 or 10 feet.

The next child that I question about her eyes says that the print "looks blurred and runs all together."

The next little girl replies, when I question her about the print, that "it blots," which is a perfectly characteristic answer, given by a great many children in different places, and has a definite significance to anybody who understands the eye.

The child now before me says the print "looks light," and by that she means that it appears dim and is not sharp and clear-cut. She probably has a case of astigmatism.

Still another child replies that the print "looks crooked," which is also a very common reply.

The next child has just told me what I suppose 100 children, at least, have said. She remarks that the print "looks upside down." By that she doesn't mean that it is actually upside down, but that it is turned around a good deal.

This little girl now before me gives a very interesting and definite answer. She says, "The print looks like it wasn't there, and I am always skipping words." There is no question at all about the fact that she has a definite visual defect.

The boy I am now questioning says the lines "look double." He has what we call "muscular unbalance."

The next child says that after he has looked at the book a little while he sees "two lines instead of one."

Another child says that "some of the letters look big and some look small."

This child that I am now questioning gives another very interesting answer, which is definite and significant. He says that "some of the words look light and some of the words look dark," which is just as clear a diagnosis of astigmatism as can possibly be given by any doctor.

The little girl now questioned says that the words "look blotted and some look lighter than others," and "I often mispronounce words because I am not sure what the words are."

The next child says, "When I study, the words all run together, and then it gets black."

Here is a boy who tells me that he always reads the same line twice, and he does not know why he does it; and when he reads at home "in magazines and things" he gets a headache, which is a very clear indication of eyestrain.

The next boy says "the words look dim and shaky." A great many children complain that the words move or jump.

I shall not repeat all of the remainder of the responses which the children will give, but shall pass on in the examination hurriedly.

What I want you teachers particularly to notice is that, with two exceptions, all of the children of the 18 questioned give prompt and definite replies as to how the print looks to them, and that their answers give evidence that there is some real defect present. Two of the answers were very vague, and the children merely repeated what they heard other children say. You can always be sure that in such instances there is little or no trouble. If a child has a visual defect that amounts to very much, it can ordinarily be brought out by the sort of response which he gives to the question about his eyesight.

We will now make a short demonstration of how to test the vision by use of the Snellen Test Card.

In order to make this test, place the eye-test card in a good light, being sure that the child is not facing the direct sunlight. Measure off a distance of 20 feet. Hang the card on the wall nearly on a level with the child's eyes. Cover one eye with a piece of cardboard or an envelope. Never allow anything to press on the eye, or it will interfere with the vision for several moments. Testing one eye at a time in this manner, ask the child to read the line on the card which is marked "20 feet"; that is, he ought to read the 20-foot line at a distance away of 20 feet. If he gets a majority of the letters, we pass him on the test. If he fails to get a majority of the letters, we ask him to take the next line, which he should read at 30 feet. If he fails to get the majority of the letters in this line, try him successively with each line above until you find a line which he can read. We will say, for example, that he reads the line which is marked "40 feet"; that is, it is a line which he ought to read at a distance of 40 feet, but as a matter of fact, he is only standing 20 feet away. Therefore his vision is twenty-fourths, or one-half what it ought to be. The distance which the child is standing away from the card represents the *numerator* of the visual fraction, and the line which he reads on the card represents the *denominator*. Children have a tendency to transpose letters, but this is of no consequence, and no attention should be paid to it. If they are very slow in reading the letters, it usually indicates some eye defect, even though they read them correctly.

I shall now test the eyes of the boy who said a few moments ago that he often sees the letters double. I find that he does not see all of the letters in the 20-foot line and complains that they look blurred. He reads the 30-foot line without any difficulty, which gives him a vision of about twenty-thirds.

I am now testing another child, who said that the letters run together. She reads the 30-foot line without any difficulty and a majority of the letters in the 20-foot line; apparently she only has a mild degree of eye defect.

The next child reads a majority of the letters in the 20-foot line, but fails on one or two, and says that they look slanting. Here again is apparently a rather mild degree of eye defect.

The next little girl did not respond originally, but nevertheless she has trouble. She can not read the last line. She fails to read both the 20-foot and 30-foot lines with the right eye; and testing her eyes with each line successively, I discover that the 100-foot line is the first she can read. This little girl's vision is then about twenty-one-hundredths. The child says that the print looks all right to her when she is reading, but the teacher remarks that she always has to hold the book near her eyes. Of course she has a very high degree of eye defect, probably short-sight or myopia, and she ought to have glasses at the earliest possible moment, before the eyes deteriorate any more.

In testing the vision of the young child who has not yet learned to read, it is best to make use of the McCallie test. It consists of a series of cards, about 5 inches square, on which are printed a boy, a girl, and a bear. They are playing the game of ball, and the ball, which is represented by a small black dot, should be seen by the normal eye at a distance of 20 feet. By changing the cards frequently, it is easy to discover whether or not the child can really determine who has the ball. If he does not see the dot at a distance of 20 feet, then you gradually walk toward him until he succeeds in seeing it, and then you estimate from this about what his visual error is.

Teachers ought not only to observe and record defects of vision, but ought also to make notes of congested eyes, watery eyes, sties, and granulated lids. None of these conditions are normal, and all of them should receive attention. The serious eye disease known as trachoma is contagious and very difficult to cure. It is observed chiefly among children from the slums who have recently arrived



from the south of Europe. It is also rather common among the Indians and Japanese. It is difficult for any but an expert to recognize this disease.

Contagious diseases of the eye are in general indicated by (a) redness, (b) discharge, (c) sensitiveness to light, (d) granulations—ulcers.

A sudden redness of the eyes with more or less sensitiveness to light, particularly when accompanied by what appears to be a cold, should always cause suspicion of measles.

I will show you now how easy it is to detect the children who are suffering from adenoids. I can go through any room and detect most of the adenoid children within two or three minutes after I have been in the room, in the majority of instances, and what I can do the teacher ought to be able to do easier and better, because she is perfectly familiar with the children. I shall select a boy whom I never have seen before, because he looks to me as if he had adenoids. Then we will test him to see if, as a matter of fact, he actually has. My first reason for selecting this boy is because he has a tendency to breathe with his mouth open. In making the examination I note at once that the lower teeth cut considerably inside the upper teeth, i. e., that the upper teeth are prominent, which is very often the case where a child has breathed through his mouth for one year or more. In other words, mouth breathing has a tendency to deform the jaws, so that the teeth in the upper jaw are either crooked or prominent, or both. Or, to put it another way, probably in 95 per cent of all the cases where one notes crooked and prominent teeth, mouth breathing has occurred; so that adenoids tend to produce more or less deformity of the bones of the face. Thumb sucking and the early loss of the first teeth also have a tendency to produce crooked teeth.

The first thing that I shall do in testing this child is to ask him to talk a little, because I want to discover the quality of his voice. The boy's voice is distinctly nasal in quality, and by giving these words which you have just heard him pronounce, "nine," "ninety-nine," "nine hundred and ninety-nine," you at once bring out this nasal quality of the voice. Now, there are in general only two reasons why a child has a nasal voice. One is that he has an acute cold, and the other is that he has an obstruction in his nose, usually due to adenoids. This boy has no cold; so reasoning from what I have said, he has adenoids. And you can be sure in practically every case that, barring a cold, a nasal voice in a school child means just one thing, and that is adenoids. If in addition to this you can discover that the child sleeps with his mouth open and has a tendency to snore, you may be quite sure that you have found a case of adenoids. I have just asked this boy if he snores in his sleep, and he says "Yes." His mother tells him that he does.

In reply to my question as to how his mouth feels when he wakes up in the morning, he says that his "mouth feels dry," and the reason is, of course, that he has breathed all night with his mouth wide open. Mouth breathing is never normal.

The next boy I have selected for examination says that he has had an operation on his nose and throat, and I note that the tonsils have been removed. Probably the adenoids were also removed, but in any event there is some adenoid tissue still present. The adenoid tissue may not have been completely removed or it may have returned, because it is not very infrequent for adenoids to come back a second, and sometimes even a third time. There is only one thing to do in these cases, and that is to have the operation repeated and all the tissue removed. This child's facial bones have been somewhat deformed by mouth breathing before his operation.

Teachers ought always to be suspicious of ear trouble where there are adenoids, because this tissue has a tendency to cause trouble with the ears. For



this reason I shall test this boy's hearing, to see whether his hearing is good. I suspect that he is somewhat deaf, because he has already asked me to repeat questions a number of times. To test the hearing, one of the best ways is to use the watch. You want to determine how far you can hear your own watch in a certain room. You can not state in advance how far a watch ought to be heard. Sometimes people say to me, "How far should a watch be heard?" Of course, it goes without saying that it depends upon the watch and upon the room in which you are giving the test. To determine this point, take your own watch in a given room and see how far you can hear it, making sure that your own hearing is good to begin with; then let this distance be used as the norm. I can hear my own watch in this room at arm's length, which is pretty close to 2½ feet. In testing the hearing, always cover the child's eyes with one hand. This boy's hearing is reduced in his right ear a little more than one-half. In making the test be sure that the child is not drawing on his imagination; and, in order to determine this point, occasionally hold the watch behind you and ask the child if he hears it. The hearing in the left ear is about two-thirds normal. The boy says that he never had scarlet fever nor, as far as he knows, ever had any serious sickness. This is pretty good evidence that the defective hearing is not due to any acute infectious disease, as is sometimes the case, but that the decrease in hearing is due entirely to adenoids; and this is certainly an illustration of the fact that adenoids ought to be treated early. In a very large number of cases adenoids result in seriously defective hearing. Every child with adenoids ought to have his ears examined. Every child who has earache or running ears ought to be examined for adenoids. In other words, nearly all the ear trouble in children originates in the nose and throat. The trouble is not primarily in the ear, but in the nose and throat. Sometimes it is because the adenoid tissue which is situated behind the soft palate grows over the opening of the eustachian tube, which, as you know, leads down to the middle ear and ventilates it. Sometimes it is because there is a catarrh of the nose and throat, due either to adenoids or diseased tonsils, and the inflammation travels through the eustachian tube to the middle ear and sets up a similar inflammation there. So never forget that there is a very close and intimate relation between ear troubles and those of the nose and throat, and that most ear defects are avoidable.

If you ever have any reason to suspect that the answers of a child are incorrect when he is tested with the watch tick, it is a very easy matter to test him with the whispered voice. Place him at least 20 feet away, cover your own lips with a piece of paper so that he can not see the movement of your lips and then give him commands in a whisper. If he fails to execute the commands, you may be perfectly sure that he does not hear well, provided a normal child already tested at the same distance does execute the same commands when you use the same intensity of whisper. It is always a good procedure to use both the watch and the whispered-voice test. In the main it is safe to say that 8 per cent of the children in schools have adenoids, that 5 to 7 per cent of the children are deaf when tested with rough methods, and that nearly 15 per cent of them would be found to have defective hearing, if they were accurately tested by a physician. I want to repeat here that almost all of this trouble is due to neglected adenoids or diseased tonsils.

In testing the teeth of children, stand in a good light with your back toward the window and have the children form a line. Let them march past you, and as each child comes in front of you have him open his mouth just as wide as possible. Put one hand on the top of the head and the other on the chin, and the mouth will open wide. Note whether or not the child has any bad teeth, and if he has make a record of it. It is a general impression among parents and

teachers that it is all right to ignore defective teeth in young children, i. e., the baby teeth, but, as a matter of fact, it is more important to get the first or deciduous teeth repaired than it is the permanent ones. So any decayed teeth, whether in a young child or in an older one, ought to receive prompt attention.

Having demonstrated these simple procedures in testing the eyes, ears, nose, and teeth, we shall now make a general health survey of the children by asking some questions.

How many children here have a good deal of headache? By that I mean as often as once a week or three times or every day. Eight children respond to this question and complain of more or less chronic headache. This is a smaller number than we usually discover. There are 85 children present, and out of that number we would expect to find 15 or 20 who suffer more or less from chronic headache.

How many children here have earache every once in a while? Now the number standing is just about what we would expect to find. We have 10 children standing, which is about the usual proportion.

How many of you children sometimes have running ears? Do you ever come to school with a piece of cotton in your ears? In this group there are no children who complain of running ears. Ordinarily we find about 4 per cent.

How many children often have toothache? Seventeen children complain of more or less toothache. It is well to remember that a sound tooth never aches, although it is also true that some decayed teeth do not ache. So you can be sure that every child who has aching teeth has unsound teeth, but you can not be sure that every child who does not complain of aching teeth has sound teeth.

How many children here have a toothbrush at home? Of the 85 present, 86 reply that they have.

How many use your toothbrush every day? Only 7 reply that they do. Unless a child uses his toothbrush regularly, you may be perfectly sure that he doesn't use it much, if any. It is one thing to have a toothbrush, but quite another thing to use it, and particularly to use it correctly.

How many of you have a toothbrush that is all your own that nobody else uses? The answer indicates that there are about 3 common toothbrushes. This is a smaller proportion than we usually find. We generally discover about 5 to 10 in every 100 children who use the family brush.

How many children always have the bedroom window open at night, even in cold weather? Of the 85 present, 65 do not have ventilated bedrooms when the weather is cold.

How many children have ever been to a dentist? Only 28 out of 85 have been to a dentist at some time. The rest apparently have never been at all.

How many of you children drink coffee? Sixty-eight reply that they do. The proportion is usually about 75 per cent.

How many of you always eat some fruit for breakfast? Of 85 present, 18 respond that they do. The remainder apparently do not, and yet fruit in some form is a most important article of diet for the child.

How many children here always have some meat or some eggs to eat for breakfast? About four-fifths of the children are standing. Usually we discover that over one-half of the children eat starchy breakfasts of a most inadequate nature.

At this point I should like to call your attention to the fact that we have in the schools a very considerable number of pupils in whom there is a great discrepancy between the physiological and chronological age. Under-developed children are often immature in mental as well as physical make-up, and for this reason they are prone to exhaustion and early neurasthenia when subjected to the same school strains as stronger and more mature children of the

same actual age. The physiologically immature child deserves careful attention on the part of teachers and parents, for they may, in many instances, save the child from serious consequences in later life. Please observe the group of pupils now standing before you. There are 7 children, all 11 years of age, but physiologically there are apparently great differences present. Between the largest and smallest child here there is a difference of over 40 pounds in weight and 8 inches in height, to say nothing of differences in muscular strength, lung capacity, general endurance, etc. These children are all expected to do exactly the same school work, but it is evident from the most superficial examination that some of them are relatively weak and immature. The smallest child in this group has, to my personal knowledge, a definite neurosis at this very moment.

Now, to make a rapid summary of what we have discovered here by a few very simple questions, we note that of 85 pupils, 10 apparently have definite defects of vision; 5 have chronic earache; none complain of running ears; 8 have chronic headache; 17 have frequent toothache; 57 have never been to a dentist; only 38 have toothbrushes of their own and of these but 7 use them every day; there are 3 common or family toothbrushes; 65 pupils have unventilated bedrooms in cold weather; 67 have no fruit for breakfast; about one-fifth have no proteid food for breakfast; and 68 drink coffee.

In addition to the points which have been brought out in this "school clinic" to-day, it is easy for the teacher to make observations in respect to the following conditions: Frequent sore throat, mal-nutrition, nervous disorders, deformities, defective postures, glandular enlargements in the neck, goiter, skin diseases, early contagious disorders.

(At this point the children were dismissed, and the rest of the talk was addressed to the teachers.)

This questionnaire not only brings out the existence of a very considerable number of physical handicaps, but aids you teachers very materially in discovering what sort of hygiene teaching is most needed with a given room of pupils, and I would recommend it to you particularly for this purpose. It is of no particular use to teach children about things which are not related to their daily lives, but by such a series of questions you can find out almost exactly what things they most need to know in respect to their personal health. If a child suffers from earache, or if several children suffer from earache, the rest of the group in the room will be interested and some teaching on the subject of earache will be effective. The same may be said of toothache, visual defects, and the other things which we have mentioned.

A word now about how to get a response from the parent after the teacher has discovered that physical defects are present. A blank notice ought to be used, such as is found in the survey which the Minnesota State Board of Health furnishes free to teachers. The notice reads as follows: "— appears to the teacher to be in need of — attention. A further examination by your family physician, dentist, or specialist is advised." Now, you see that the notice simply says "appears to," and consequently does not definitely commit the teacher. This notice is signed by the principal of the school or by the superintendent. The teacher simply writes in whatever she thinks is wrong with the pupil. In the majority of instances you will find that the notice receives no attention whatever on the part of the parent, and this is one great difficulty that teachers complain about in respect to this health work that they are asked to carry on. Parents seem to be quite indifferent to the physical handicaps of their children. As a matter of fact, this is only an apparent indifference. The real difficulty is that the parent does not understand the significance of the conditions found in the child. A parent does not appreciate that adenoids have

serious consequences. He does not know that there is any relation between aching and discharging ears and adenoids, or between adenoids and crooked, prominent teeth and receding chin, or between adenoids and catarrh, or between enlarged, diseased tonsils and rheumatism, or between visual defects and headache and nervousness, and so on indefinitely. Now, what the parent really needs is some simple information along these lines. When once he receives such information, in almost every case he will cooperate. I have found this to be the case by long experience in work with school children. In order to give the parent the kind of instruction which he requires, I think the best plan is to send with the notice which the child takes home a little pamphlet which describes in very simple language what the defect is and what the consequences of such a defect are when neglected. When the parent really understands the situation, he will cooperate in almost every instance.

A few words now about the detection of mentally peculiar children, and especially of mentally defective children in the schools. It is of the greatest possible importance to discover whether a child is actually defective or merely dull, or perhaps a "misfit." A few years ago we had no exact way of discovering this point, but during the last three years use has been made in this country of what has been called the "Binet-Simon Intelligence Test" for measuring the intelligence of children who are suspected of being mentally defective. It is a psychological test and an extremely simple one, and there are nearly always a few teachers in a school system who soon become adepts in its use. It is so simple that any teacher at first thinks that she can use it. The difficulty is in the interpretation of the test. A certain aptitude is required, and an understanding of child nature, in order to use the test successfully. I should not recommend that the average teacher make use of it, but I think there are always a few teachers, as I said before, in every school system who can learn to employ the Binet test.

By means of this scale it is perfectly possible in the majority of cases to discover whether a child's mental age is actually equal to his chronological age or real age. A child may be 14 years old, for example, and have a mental age of only 6 years. A child may be 14 years old, as in the case of a little girl I recently examined, and yet when the test is applied, have a mental age of a normal child of 8 years. In this instance the 14-year old child had been in the first grade for five successive years.

[Eight retarded children were called into the room and arranged in a line, with a ninth standing in front of them. It was recommended that in each case the actual mental age ought to be determined by the Binet scale. These children gave their ages and grades as follows:

	Years.	Grade.
The first child.....	13	5th
The second .....	12	4th
Third .....	13	4th
Fourth .....	13	5th
Fifth .....	13	5th
Sixth .....	13	5th
Seventh .....	12	4th
Eighth .....	14	5th
Ninth .....	9	2d

A subsequent examination proved that only two of these children had a mental age equal to their actual age.]



In every school system it appears that the proportion of deficient or mentally fixed children is somewhere from 1 to 8 per cent, and is probably not far from 2½ per cent. Every child who is retarded two years or more ought to be tested by the Binet-Simon Intelligence Scale to determine whether he is mentally defective or merely dull, for the treatment of these types of children must be essentially different. Dull children will not and can not receive a great deal of education, but their judgment is usually good. We should not try to educate these pupils too much. They will succeed fairly well in the world along lines not requiring superior intelligence. The mentally defective child, on the other hand, has defective judgment as well as defective intelligence. He does not profit by the ordinary plan of school education at all. Either the school must provide special lines of work for him, or else he must be sent to an institution for defectives. If his mental age is less than 8 years he probably never belongs in the public-school system, for he will never become independently self-supporting, but above this age he may in some cases.

I should like to recommend that all of you teachers become familiar with certain recent books on the subject of the physical and mental observation of school children, and for this purpose I will mention a few of them: Allen's "Civics and Health"; Ginn & Co. Hoag's "Health Index of Children"; Whitaker & Ray-Wiggin Co. Hoag's "Outline for the Health Grading of the School Child." Hoag and Terman's "Health Work in Schools"; Houghton-Mifflin Co. Cornell's "Medical Inspection of School Children"; F. A. Davis Co. Gulick and Ayres' "Medical Inspection of Schools"; Charities Publication Committee. Holmes's "Conservation of the Child"; J. B. Lippincott Co. Huey's "Syllabus for the Clinical Examination of Children" (The Binet Test); Warwick & York.

A summary of clinics held at 15 cities.<sup>1</sup>

	Adrian.	Lavonia.	Dawson.	Winthrop.	Madison.	Benson.	Willmar.	Morris.	Montevideo.	Redwood Falls.	Granite Falls.	Pipestone.	Albert Lea.	Windom.	Wabasha.
Date .....	5/7	5/7	4/28	4/29	4/24	4/11	4/8	4/8	4/16	4/22	4/18	5/6	5/13	5/1	4/28
Grades .....	3-8	3-8	3-5	2-5	2-5	4-5, 7-8	3-5	4-5	3-4	4-5	3-5	4-6	3-5	3-5	3-5
Number present .....	96	44	107	87	119	113	91	22	65	86	95	114	85	94	52
No ventilation in bedroom .....	20	26		57		40	25	8		5	20	6	85	31	31
Own toothbrush .....	85	39	70	82	65	104	76	21	57	80	84	102	86	94	38
Daily use of toothbrush .....	14	10	7	14	14	8	11	1	22	40	19	22	7	37	18
Use of common toothbrush .....		4	13	10		15					2	8	8	12	3
Never been to a dentist .....		19	58					6				48	57		26
Frequent toothache .....	20	9	28	41	30	37	22	14	17	20	28	30	17		14
Frequent headache .....	11	13	43	37	25		9	5	13		26	38	8	25	13
Blurred vision .....	6	16	25	19		25	20	11	7	20	16	37	16	17	12
Frequent earache .....	6	6	21	13	17	11	8	2	16	12	13	19	5	7	14
Running ear .....	3	1	4	4	9	2	1	1	8	4	4	7	0	4	3
Frequent sore throat .....	9			5					9			26			
Adenoids .....	5	6	4	6	9	7	4	2	3	4	6		7		
Diseased teeth .....		3		2					4				8		
No form of prosthesis for breakfast .....	20	19							16			22	17	46	20
No fruit for breakfast .....	51	40				104			50		54	95	67	91	41
Daily use of coffee .....	55	25	88	95	98		71	15	23	40	54	62	68		40

<sup>1</sup> Blank spaces indicate that the question was not asked or examination was not made.



Table indicating sanitary conditions of Minnesota graded schools.

+ indicates satisfactory condition; + - indicates fairly satisfactory condition; - indicates unsatisfactory condition.

Cities and towns.	Heating system.	Ventilation.	Lighting.	Drinking fountain.	Common drinking cup abolished.	Paper towels.	Roller towels abolished.	Temperature.	Air humidification.	Adjustable desks.	Health supervision.	Cleaning methods.	Toilet ventilation.
Alexandria.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Albert Lea.....	++	++	++	++	++	++	++	68	++	++	++	++	++
Austin.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Adrian.....	++	++	++	++	++	++	++	73	++	++	++	++	++
Benson.....	++	++	++	++	++	++	++	68	++	++	++	++	++
Biwabik.....	++	++	++	++	++	++	++	67-70	++	++	++	++	++
Brainerd.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Cannon Falls.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Chatfield.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Chisholm.....	++	++	++	++	++	++	++	63-68	++	++	++	++	++
Cloquet.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Crookston.....	++	++	++	++	++	++	++	67	++	++	++	++	++
Dawson.....	++	++	++	++	++	++	++	68-68	++	++	++	++	++
Ely.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Eveleth.....	++	++	++	++	++	++	++	68	++	++	++	++	++
Fairmont.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Faribault.....	++	++	++	++	++	++	++	65-72	++	++	++	++	++
Farmington.....	++	++	++	++	++	++	++	80-80	++	++	++	++	++
Fergus Falls.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Glencoe.....	++	++	++	++	++	++	++	68-71	++	++	++	++	++
Grand Rapids.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Granite Falls.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Hellock.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Hibbing.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Lanesboro.....	++	++	++	++	++	++	++	65-72	++	++	++	++	++
Litchfield.....	++	++	++	++	++	++	++	68	++	++	++	++	++
Luverne.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Madison.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Manhato.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Montevideo.....	++	++	++	++	++	++	++	68	++	++	++	++	++
Moorehead.....	++	++	++	++	++	++	++	++	++	++	++	++	++
Morris.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
New Ulm.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Pipestone.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Red Wing.....	++	++	++	++	++	++	++	68	++	++	++	++	++
Redwood Falls.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Renville.....	++	++	++	++	++	++	++	65-70	++	++	++	++	++
Rochester.....	++	++	++	++	++	++	++	68	++	++	++	++	++
Rushford.....	++	++	++	++	++	++	++	65-70	++	++	++	++	++
St. Cloud.....	++	++	++	++	++	++	++	72	++	++	++	++	++
St. James.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
St. Peter.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Sauk Center.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Slayton.....	++	++	++	++	++	++	++	68-72	++	++	++	++	++
Spring Valley.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Stillwater.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Two Harbors.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Virginia.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Wabasha.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Waseca.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Wadena.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Wilmot.....	++	++	++	++	++	++	++	68-70	++	++	++	++	++
Winona.....	++	++	++	++	++	++	++	70	++	++	++	++	++
Winthrop.....	++	++	++	++	++	++	++	68-72	++	++	++	++	++
Worthington.....	++	++	++	++	++	++	++	70	++	++	++	++	++

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# APPENDIX.

## BLANKS AND FORMS FOR RECORDS, PARENTS' NOTICES, ETC.

### PHYSICAL RECORD.

HEALTH RECORD OF

SEX: M-F. BORN:

School year.....	1	2	3	4	5	6	7	8	9
Examination and results.	E	R	E	R	E	R	E	R	E
Dates									
General appearance									
Nutrition									
Nervous disorder									
Eyes									
Ears									
Nose									
Throat									
Teeth									
Skin									
Heart									
Lungs									
Neck glands									
Vaccination									
Visits of nurse									
Reply to notice									

NOTE:  
 †—Normal. C.—Corrected. E.—Examination.  
 —Not normal. N.—Not corrected. R.—Result.  
 P. C.—Partially corrected.

(OVER)

[REVERSE.]

#### REMARKS:

This child has had the following diseases at the age indicated below:

Chicken pox when..... years old.	Whooping cough when..... years old.
Diphtheria " " " "	Pneumonia " " " "
Measles " " " "	Typhoid " " " "
Tonsillitis " " " "	Smallpox " " " "
Mumps " " " "	Tuberculosis " " " "
Scarlet fever " " " "	Infantile paralysis " " " "

Date.....

Notice to parents or guardians:

..... appears to  
 the teacher to be in need of.....  
 .....attention. A further examination  
 by your family physician, dentist, or specialist, is advised.

Principal.

School.

The parent will please sign here and  
 return the notice to the principal.